



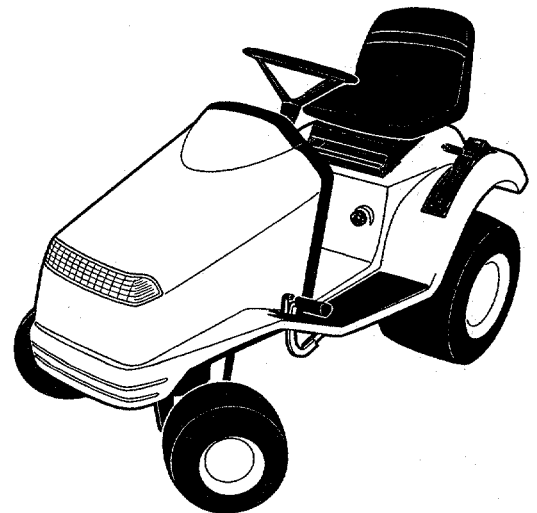
Owner/Operator Manual

LTX Tractors

- Safety
- Controls
- Operation
- Maintenance

Models

- 13095** —13HP Gear Drive
- 13096** —13HP HYDRO DRIVE
- 13097** —15HP Hydro Drive
- 13099** —16HP Hydro Drive



Introduction

Thank you for purchasing this product. We feel you now own one of the finest pieces of equipment available.

All information in this manual is based on the latest product information available at the time of printing.

This manual is considered a permanent part of the unit and must stay with the unit if resold.

This is a safety, operation and general maintenance manual which does not attempt to cover major repairs.

Our equipment is carefully designed, engineered and manufactured for excellent performance if properly operated and

maintained. Read this manual to familiarize yourself with the unit, its features and operation.

Our products have passed the rigid safety standards set by the Outdoor Power Equipment Institute and an independent testing laboratory.

The warranty statement is included on the back cover of this manual. Read it thoroughly. Also, please complete and return the postpaid owner registration card included with this manual. This card registers each unit and owner at the factory in order to provide bulletins and safety literature.

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Unit Service and Repair

Contact an authorized dealer to service your unit. Provide the dealer with the unit's model/serial number and the part's description. Do not return parts directly to the factory.

Warranty Service

The warranty for the unit is printed on the back cover of this manual. Warranty service is available from your authorized dealer.

Left and Right Sides

Left and right sides of this unit are determined from the operator's position, facing the direction of forward travel.

Engine Service

For engine service, contact an authorized engine dealer. To locate an authorized engine dealer, refer to the "Yellow Pages" under "Engines—Gasoline" or "Gasoline — Engines". Provide the dealer with the engine model and serial numbers.



WARNING: Engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

SPARK ARRESTER WARNING TO RESIDENTS OF CALIFORNIA AND OTHER STATES

Under California law, and under the laws of several other states, you are not permitted to operate an internal combustion engine using hydrocarbon fuels on any forest, brush, hay, grain, or grass covered land; or land covered by any flammable agricultural crop, without an engine spark arrester in continuous effective working order.

The engine on the unit is an internal combustion engine which burns gasoline, a hydrocarbon fuel, and must be equipped with a spark arrester muffler in continuous effective working order. The spark arrester must be attached to the engine exhaust system in such a manner that flames or heat from the exhaust system will not ignite flammable material. Failure of the owner/operator of the unit to comply with this regulation is a misdemeanor under California law (and other states) and may also be a violation of state and/or federal regulations, laws, ordinances or codes. Contact your local fire marshal or forest service for specific information about which regulations apply in your area. Contact your local engine dealer for information about obtaining a spark arrester.

Identification Numbers

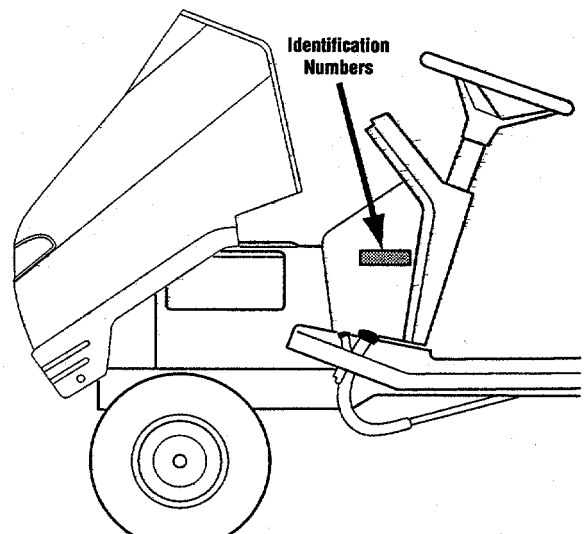
For prompt service, provide the authorized dealer with the identification numbers for the unit. Fill in the spaces below with the identification numbers for future reference.

Date of Purchase:

Unit Model/Serial Number:

Transmission Model/Serial Number:

Engine Model/Serial/Spec. Numbers:



Section 1

Safety

Important!

Safe Operating Practices for This Unit



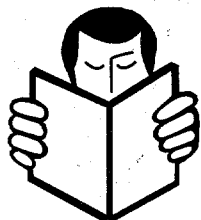
This is a safety alert symbol. It is used in this manual and on decals on the unit to alert you to potential hazards. Whenever you see this symbol, read and obey the safety message that follows it. Failure to obey the safety message could result in personal injury or property damage.

INTRODUCTION

1. Unit is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

2. Serious accidents which may cause injury or property damage can occur if the following safety guidelines are not followed. Operator is solely responsible for accidents or hazards that occur when using unit. Preventing accidents is the responsibility of every equipment operator. Accidents can be prevented. Be careful before, during and immediately after use of any power equipment. The following general safety precautions must be fully understood and followed during operation. Review these instructions frequently and never take chances. If you do not understand any part of this manual or need assistance, contact your dealer or our service department.

TRAINING



1. Read, understand and follow all instructions in this manual and on unit before starting. A replacement manual is available from the factory. To order a replacement manual, contact the

factory at the address indicated in this manual. Provide the model/serial number of unit when ordering.

2. Read and understand the owners manual provided with each attachment used with the unit.

3. Read the engine operation and maintenance manual provided with the unit before operation. Read and follow all safety instructions provided in that manual.

4. Only allow responsible adults, who are familiar with the instructions, to operate the unit.

5. Know the location and function of all controls before operating unit. Know how to stop engine and attachments quickly in case of emergency. Familiarize yourself with all safety and operation decals on the unit and attachments. If these decals are damaged or not legible, clean or replace them as needed.

PREPARATION

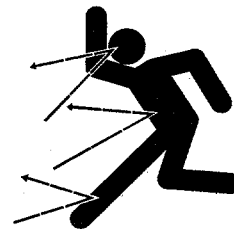
1. Wear proper clothing when operating unit. Always wear sturdy footwear (preferably steel-toed shoes) and hearing protection during operation.
 - a. Wear heavy leather gloves whenever working near or servicing any cutting edges on unit.
 - b. Do not wear loose-fitting clothing, jewelry, scarves, ties, etc., which may get caught in moving parts. Tie up or restrain long hair.

- c. Do not operate unit while barefoot. Do not wear sandals.
 - d. Wear long trousers.
 - e. Wear hearing protection.

2. Do not operate unit when tired, ill or under the influence of alcohol and/or other drugs.

3. Be prepared for an emergency. Keep a first aid kit and fire extinguisher handy. Keep emergency telephone numbers for ambulance, fire, hospital, doctor and rescue near your telephone.

BEFORE OPERATION



1. Before each use, clear work area of objects such as rocks, toys, wire, etc., which could be picked up and thrown by mower blades.

2. Keep unit in safe operating condition. Check the following each time before starting unit:

- a. All hardware for tightness (especially blade mounting hardware—check for proper torque specifications frequently in this area—refer to maintenance section of attachment owners manual).
- b. Brakes, steering and other major controls for proper operation.

- c. Inspect mower blades for wear or damage. Broken pieces thrown from a worn or damaged blade can cause serious injury.
- d. Check for and maintain correct tire pressure. Check tires for cuts or bubbles. Check wheels for damage or missing hardware. Repair or replace as required.
- e. Check engine oil level and add oil as required. If oil level is below "ADD" mark, DO NOT run engine.
- f. Perform the pre-operation checklist, beginning on page 15 in this manual.

3. Do not operate unit or attachments without safety devices and shields in place and operating properly.

4. Only use attachments which are approved for use with this unit. Contact our service department if there is a question whether an attachment is approved for unit.

5. When using attachments, use wheel weights (where required) for extra traction and proper balance.

6. Unit is equipped with a safety interlock system, designed to shut off engine when operator leaves seat while an attachment is running or if parking brake is not engaged. If the interlock system is not working properly, repair it before operating the unit.

CORRECT ANY MALFUNCTION BEFORE USING THIS UNIT OR ATTACHMENTS!

HANDLING GASOLINE



1. Use extra care in handling gasoline and other fuels. Gasoline and its vapors are volatile and dangerous. Keep gasoline and gasoline containers away from hot engine exhaust. Never allow flame, sparks, smoking materials or other hot objects near gasoline or gasoline fumes.

2. Wipe up spilled gasoline immediately. Only use approved gasoline containers.

3. Leave two inches of air space at top of fuel tank to allow room for expansion.

4. Store gasoline in a cool, well-ventilated area. Never store unit or fuel container inside where there is an open flame, such as a hot water heater, furnace, etc.

5. Never remove fuel fill cap, or add fuel to fuel tank, if engine is running or hot. Always replace fuel fill cap before starting engine.

6. Never refuel unit indoors. Refuel outdoors in a well-ventilated area.

OPERATION

1. When starting engine:
 - a. Disengage attachment/PTO (Power Take-Off) drive.
 - b. Set parking brake.
 - c. Place transmission into neutral position.

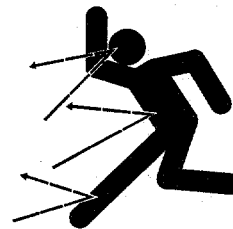
2. Remain seated when starting engine and during operation. Operate unit with feet flat on running boards at all times.



3. Keep hands, feet, face, hair and clothing away from rotating parts. Stop engine before removing grass catcher or unclogging chute.

4. When operating a mower deck:
 - a. Mow only in daylight or in good artificial light.
 - b. Never dismount to make a cutting height adjustment while the engine is running.
 - c. Disengage attachment/PTO drive, shut off engine, remove ignition key and wait for all moving parts to stop before unclogging discharge chute, mounting grass catcher or Grass Reduction System (GRS).

5. Disengage attachment/PTO drive when transporting unit to work area or when attachments are not in use.



6. Be aware of attachment discharge direction and do not point it at anyone. Do not operate mower decks without either the entire grass catcher or the guard in place.

7. If you strike a foreign object, disengage attachment/PTO drive, shut off engine, wait for all moving parts to come to a stop and remove ignition key. Inspect for and repair any damage before operating equipment again.

Safety (continued)

8. Never carry passengers. Passengers interfere with the safe operation of this unit. Passengers could be struck by foreign objects and/or thrown from unit and severely injured.



9. Be sure area is clear of other people before mowing. Stop machine if anyone enters the area. Do not operate unit with children, pets or others nearby.

10. As a general rule, do not mow in reverse. Disengage power to mower attachments before backing up. If it is absolutely necessary to back up:

- Check area on ground directly behind unit.
- Continue to observe area down and to rear while backing up.

11. Approach blind corners cautiously.

12. Always observe the terrain. Watch for and avoid obstacles. Stay away from holes, ditches, soft or steep embankments and other potentially dangerous terrain. Tall grass can hide obstacles.

13. Wet surfaces reduce traction and stability. Always maintain proper traction. Grip the steering wheel firmly.

14. Slow down before turning.

15. Do not install an automotive-type ball hitch on this unit. When pulling loads:

- Use approved hitch points.
- Limit loads to those which can be safely controlled.

16. Watch out for traffic when operating near or crossing roadways.

17. Never leave a running machine unattended. Always turn off attachment/PTO drive, set parking brake, stop engine and remove key before dismounting.

CHILDREN



1. **Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. Never assume that children will remain where you last saw them.**

2. **Never allow children to operate this unit, even under adult supervision.** Local regulations may restrict operator age. Only allow responsible adults, who are familiar with these instructions, to operate the unit.

3. **Never carry children as passengers.** Do not carry ANY passengers. They may fall off and be seriously injured or interfere with safe machine operation.

4. Keep children out of the work area and under the watchful care of another responsible adult.

5. Be alert and turn machine off if children enter the area.

6. Before and when backing, look behind and down for small children.

7. Use extra care when approaching blind corners, shrubs, trees or other objects that may obscure vision.

8. Keep children away while performing maintenance or adjustments.

SLOPE OPERATION



1. **Slopes are a major factor in loss-of-control and tip-over accidents which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not operate this unit on the slope.**

2. Remove obstacles such as rocks, tree limbs, etc.

3. Watch for holes, ruts, or bumps. Uneven terrain could overturn the machine. Tall grass can hide obstacles.

4. Always mow up and down the face of slopes, never across. Do not mow near dropoffs, ditches or embankments. The unit could suddenly overturn if a wheel goes over the edge of a cliff or ditch, or if an edge caves in.

5. When using attachments on slopes, use wheel weights, as indicated in Section 2, "Attachments and Kits", for extra traction and correct balance.

6. Do not turn on slopes unless necessary, and then, turn off attachment drive and turn slowly and gradually downhill.

7. Do not start or stop suddenly when going up or down a slope. Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction. If the unit has a gear drive transmission, choose a low gear so that you will not have to stop or shift while on the slope.

8. If unit is unable to continue moving uphill, disengage attachment/PTO drive, check area on ground immediately behind unit, watch area to rear and proceed backward slowly.

9. Do not operate unit on steep slopes where there is a risk of an overturn. **Do not mow slopes with an incline of more than 10°.** Use slope gauge included with your unit as an aid in determining the incline of a slope.

10. Use extra care with grass catchers or other attachments. These can change the stability of unit.

11. Do not operate unit on wet grass. Reduced traction could cause sliding.

12. Do not try to stabilize unit by putting your foot to the ground.

13. Do not park unit on a hill.

STOPPING

1. Before leaving operator's position or before leaving tractor unattended:

- Bring unit to a complete stop.
- Disengage attachment/PTO drive.
- Lower attachments to ground.
- Set parking brake.
- Shut off engine and remove ignition key.
- Wait for all moving parts to come to a complete stop.

2. Disengage attachment/PTO drive when transporting tractor or when attachments are not in use.

MAINTENANCE

1. Before performing any service, adjustments or maintenance on unit, engine or attachments:

- Park unit on a firm and level surface.
- Disengage attachment/PTO drive.
- Lower attachments.
- Move all control levers to "Neutral".

- Apply parking brake.
- Shut off engine. Remove ignition key and allow engine to cool.



2. Always wear sturdy footwear (preferably steel-toed shoes), long trousers, hearing and eye protection while doing any maintenance on unit. Do not wear loose-fitting clothing, jewelry, scarves, ties, etc., which could get caught in moving parts. Tie up or restrain long hair.

3. Mower blades are extremely sharp. Use caution when servicing. Wear gloves or wrap blades in rags. Wear eye protection when sharpening blades.

4. Keep children away while performing maintenance or adjustments.



5. Provide safe, adequate light in your work area. NEVER USE AN OPEN FLAME FOR ILLUMINATION! Use only a portable safety light enclosed in a wire cage for working inside or under unit. **NOTE: Hot filaments from a broken light bulb can ignite spilled fuel or oil.**

6. Keep nuts and bolts tight (especially blade mounting hardware—check for proper torque specifications frequently in this area—refer to maintenance section of attachment owners manual). Keep equipment in good condition.

7. Never tamper with safety devices. Check their proper operation regularly. Repair or replace as necessary.

8. Keep unit free of grass, leaves or other debris build-up. Clean up oil or fuel spillage. Allow machine to cool before storing.

9. Grass catcher components are subject to wear, damage and deterioration, which could expose moving parts or allow objects to be thrown. Check their proper operation regularly. Repair or replace as necessary.

10. Frequently check components and replace when necessary. Use only factory-approved replacement parts. Parts manufactured by others may present safety hazards even though they may fit on the unit.

11. Replace muffler if worn or defective.

12. Keep all safety and operation decals in place. If these decals are damaged or not legible, clean or replace them as needed. Refer to Section 3, "Decals", for decal description and location.

13. Check brake operation frequently. Adjust and service as necessary as indicated in Section 6, "Maintenance".

14. Chock wheels (place blocks of wood in front of and behind wheels) when performing maintenance with the parking brake off. Securely support unit if it must be raised for any reason.

15. Check wheel attachment hardware regularly and ensure it is properly secured. Do not attempt to mount a tire on a wheel rim unless you are experienced in doing so. Follow proper safety precautions and use proper tools. Mounting a wheel improperly could result in serious injury or death.

16. Do not inflate tires above recommended pressures. Use a clip-on chuck to inflate tires, with an extension hose long enough to allow you to stand to one side and NOT over or in front of the tire assembly.

Safety (continued)

17. Towing or pushing unit with another vehicle will damage transmission. Push unit by hand only.

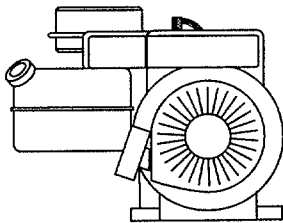
18. Use a heavy-duty trailer to transport unit. Lower attachments to trailer bed. Set parking brake. Fasten unit securely to trailer with straps, chains or cables. Unit must be secured to trailer facing forward. Severe damage can occur to hood of unit if it is trailered facing backwards.

19. Use extra care when loading or unloading the machine into a trailer or truck.

20. Do not use food or beverage containers to store waste materials. Using such containers could result in accidental poisoning.

21. Hood retaining hardware may become hot from engine exhaust. Burns may result. Do not remove hood without first stopping engine and allowing these parts to cool.

ENGINE



1. Read the provided engine operation and maintenance manual completely before operation. Read and follow all safety instructions provided in that manual.

2. **BEFORE SERVICING ENGINE:** Disconnect spark plug wire and keep it from touching spark plug.

3. Keep engine free of grass, leaves, oil and grease.

4. Engine exhaust is extremely hot. Keep grass, oil, fuel and other combustible materials far away from engine exhaust.

5. Do not change engine governor setting. Over-revving may damage engine and will void warranty.

6. Never run an internal combustion engine inside a closed area. Engine exhaust contains carbon monoxide gas, a deadly poison. Carbon monoxide is odorless, colorless and tasteless. Do not operate unit near buildings, windows or air conditioners. If engine is run in a garage, open all doors and allow for adequate ventilation.

7. **Do not run engine with hood open. Hood damage may occur.**

BATTERY



1. **BEFORE WORKING WITH ELECTRICAL WIRES OR COMPONENTS: Disconnect the battery ground (negative) cable first. Disconnect the positive cable second. The battery ground (-) cable must be disconnected first and reconnected last.**

2. Before attempting to charge battery, understand and follow correct procedure or bring battery to a factory-authorized dealer for charging. Do not charge a frozen battery.

3. Battery electrolyte can cause severe burns. Eye contact can cause blindness. Always wear approved safety goggles when working around the battery.

4. If electrolyte contacts skin or eyes:
a. Flush affected area with water.
b. Apply baking soda to neutralize acid.
c. Flush eyes with water for 10-15 minutes.
d. Call a physician immediately.

5. If electrolyte is swallowed:

- Drink large amounts of water or milk.
- Follow by drinking milk of magnesia, beaten eggs or vegetable oil.
- Call a physician immediately.

6. Electric storage batteries give off highly explosive hydrogen gas while charging and continue to do so for some time after receiving a steady charge. Do not, under any circumstances, allow an electric spark or an open flame near the battery. Do not lay tools across the battery terminals as this may result in a spark or a short circuit which may cause an explosion. Use a flashlight to check electrolyte level.

STORAGE

1. Do not store unit inside a building where fumes from fuel in fuel tank may reach an open flame or spark. Allow unit to cool before moving it inside an enclosure. Use a gasoline storage stabilizer when storing unit.

2. Keep unit and fuel supplies securely locked away to help prevent access by children.

3. Remove ignition key.

4. Disconnect battery cables or remove battery if unit is to be stored for an extended period. Remove negative (ground) cable first. Re-connect negative (-) cable last.

5. Fully charge battery before storage. Store battery in a cool, dry place, out of reach of children.

Attachments and Kits

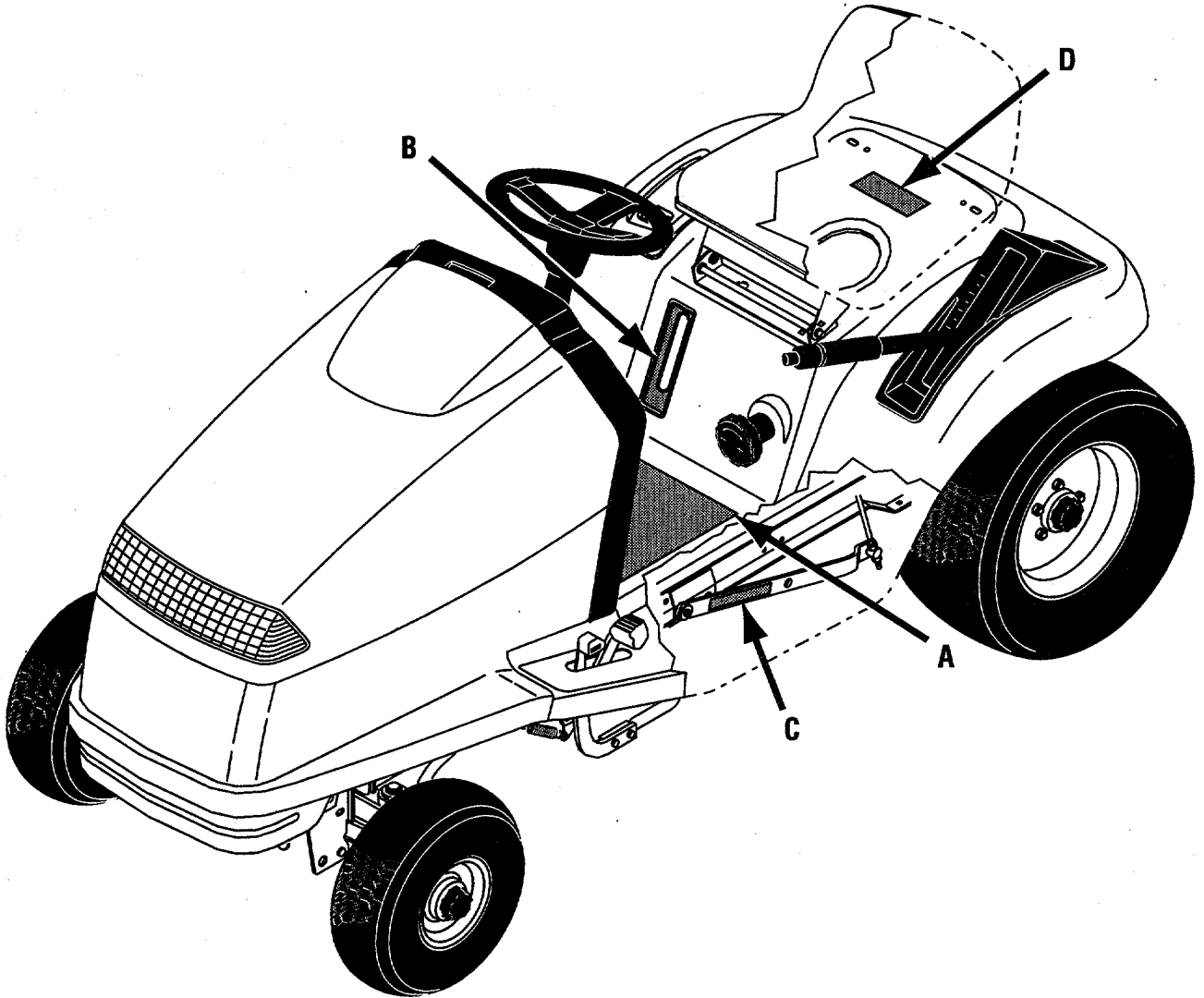
A full line of attachments available for your unit are listed below. The information is the most current at the time this manual was printed. Check with the nearest dealer for current information.

Model	Description	Model	Description
MOWER DECKS		COUNTER BALANCE	
14051	42" Side Discharge Deck	14090	Rear Wheel Weights Improves rear-wheel traction.
14052	48" Side Discharge Deck For models 13097 & 13099 tractors only.	14091	Front Wheel Weights For model 13099 tractors only.
14060	42" Rear Discharge Deck	30915	Drawbar Weight Mounts to rear of tractor when additional weight is needed.
14104	38" Mulching Deck Eliminates clippings and bagging.	OTHER ATTACHMENTS & KITS	
14110	36" Side Discharge Deck Not for model 13099 tractors.		
GRASS COLLECTION		14032	42/48 GRS Grass Reduction System. Mulching attachment for models 14051 & 14052 mower decks. For use with models 13097 & 13099 tractors.
14058	Power Packer Plus Air assist bagger. For model 14051 & 14052 mower decks. Requires model 14081 or 14070 attachments. Not for models 13095 & 13096 tractors.	14038	29" Tiller Not for model 13095 tractors.
14070	Grass Collection Cart 21.25 cubic foot/17-bushel grass collector. May also be used as a dump cart. Requires model 14058 attachment. Not for models 13095 & 13096 tractors.	14053	Tire Chains 20" RS turf.
14081	2-Bag Grass Collector Mounts to rear of tractor. 6-bushel capacity. Requires model 14058 attachment. Not for models 13095 & 13096 tractors.	14076	Dump Cart 10-cubic foot/8-bushel capacity.
14109	2-Bag Grass Collector Use with model 14110 mower deck. 6-bushel capacity. Not for model 13099 tractors.	14078	Push Arm Kit Required for use with models 14037, 14039 & 14079 attachments.
SNOW REMOVAL		14083	Cab Cannot be used with models 14070, 14081 or 14109 attachments.
14037	2-Stage Snowthrower For use with models 13097 & 13099 tractors. Requires model 14078 attachment. Model 14090 attachment recommended.	14087	Storage Cover
14039	1-Stage Snowthrower Requires model 14078 attachment. Model 14090 attachment recommended.	14105	Electric Lift Kit Allows finger-tip operation of attachment lift. Standard on model 13099 tractors.
14079	44" Snow Blade Requires model 14078 attachment. Model 14090 attachment recommended.	14053	20" Tires Chains Improves traction, especially on snow and ice. 20 x 8.00-8. For models 13095, 13096 & 13097 tractors.
14080	54" Snow Blade For model 13099 tractors only. Requires model 14078 attachment. Model 14090 attachment recommended.	16219	23" Tires Chains For model 13099 tractors only. Improves traction, especially on snow and ice. 23 x 10.5-12.
		1767977	Arm Rest Kit Mounts to existing tractor seat. For models 13097 & 13099 tractors.
		1768854	Ammeter Kit Monitors electrical system current. Standard on model 13099 tractors.

Section 3

Safety Decals

Refer to this section for safety decal description and location. Keep safety decals on unit clean, legible and intact. Refer to Parts Catalog and see your dealer for replacements when necessary.



Ref. Letter

Description and Location

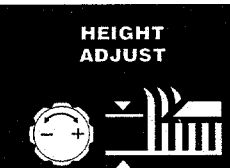
Qty.

A	Tunnel Decal—Located between running boards on top of fender	1
B	Fuel Level Decal—Located around fuel level window in fender	1
C	Crushing Hazard Decal—Located on attachment lift arms under running boards (not on model 13099)	2
D	Fire Warning Decal—Located on top of fender under seat	1

A.

Models 13097 & 13099 only

HEIGHT ADJUST



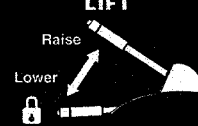
Adjust with attachment in raised position.

BRAKE



LIFT

Raise
Lower



Grip lever firmly. Lock down when changing attachments.

⚠ DANGER

ROTATING BLADES CAN CUT ARMS AND LEGS.

- Look down and behind before and while backing.
- Do not carry passengers. They fall off.

⚠ WARNING

OBJECTS MAY BE THROWN FROM MOWER.

- Before mowing, clear lawn of all debris.

⚠ WARNING

TO AVOID SERIOUS INJURY READ ALL SAFETY PRECAUTIONS CAREFULLY.

- Read owner/operator manual.
- Avoid sudden turns.
- Do not mow when children or others are near.
- Do not allow children or untrained adults to operate unit.
- Use caution when approaching obstacles that block your view.
- Keep all safety devices in place and in working order.
- When leaving machine, stop engine, set parking brake and remove key.

⚠ WARNING

MAXIMUM SAFE OPERATING ANGLE IS 10°.

- Exceeding maximum safe operating angle may cause overturn or loss of control.
- Travel up and down slopes, not across.
- If you cannot back up a hill - do not drive on it.
- If machine stops moving uphill disengage attachment drive (PTO) and back down slowly.

B.




C.



⚠ WARNING

CRUSHING HAZARD. Lock lift lever down before changing attachments.

D.



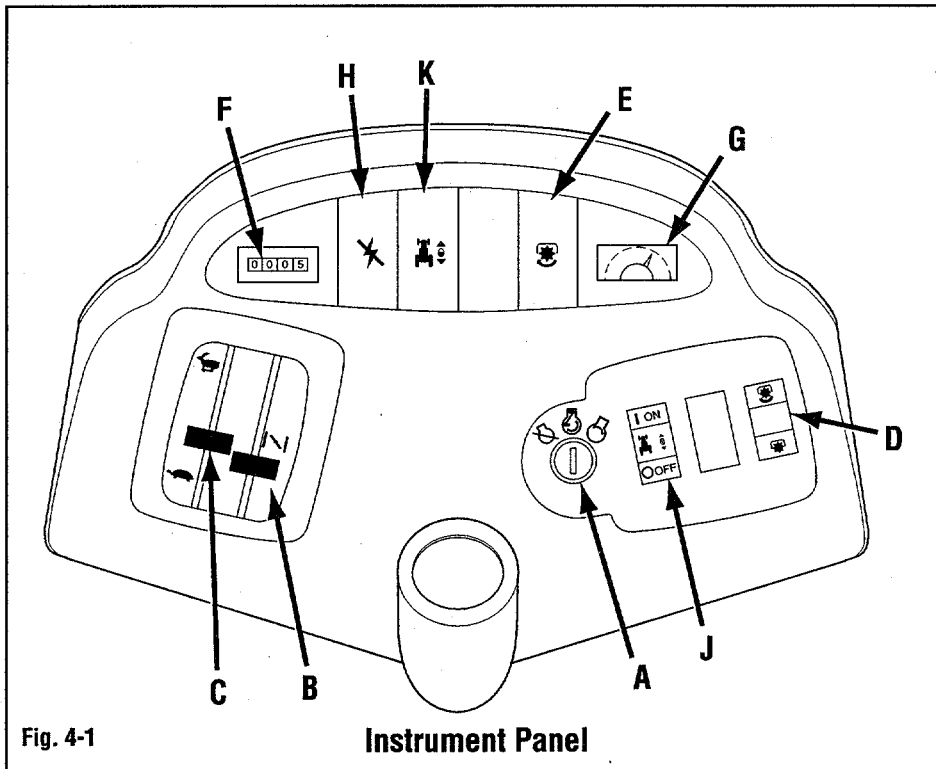
⚠ WARNING

GASOLINE IS FLAMMABLE. Stop engine, avoid heat, sparks and open flame when refueling.

Note: Maintenance decal is under hood.

Section 4

Features & Controls



(D)—Attachment/PTO Drive Switch
Controls power to attachments. Press top of switch to engage, press bottom to disengage.

(E)—PTO Indicator Light
Lights up when attachment/PTO drive is engaged.

(F)—Hour Meter [Optional—standard on models 13096, 13097, 13099]
Registers hours of use. Activates when the engine is running or when the ignition switch is on.

(G)—Ammeter [Optional—standard on model 13099]
Measures battery charge. Activates when engine is running.

(H)—Safety Start Indicator Light
Unit will not run when this light is on. For a more detailed description of the safety interlock system, see "Interlock System Test Procedure," Section 5 "Operation".

(J)—Cruise Control Switch
[Standard on model 13099]
Activates/deactivates cruise control. Cruise control automatically maintains constant travel speed. See "Cruise Control" in Section 5 "Operation" for operating instructions.

(K)—Cruise Indicator Light
[Standard on model 13099]
Lights when cruise control is activated.

Fig. 4-1

Instrument Panel

CAUTION

KNOW THE LOCATION AND FUNCTION OF ALL CONTROLS BEFORE OPERATING UNIT. KNOW HOW TO STOP ENGINE AND ATTACHMENTS QUICKLY IN CASE OF EMERGENCY.

(A, Fig. 4-1)—Ignition / Starter Switch
Note: Always remove ignition key whenever unit is unattended to prevent children or unauthorized persons from starting unit.

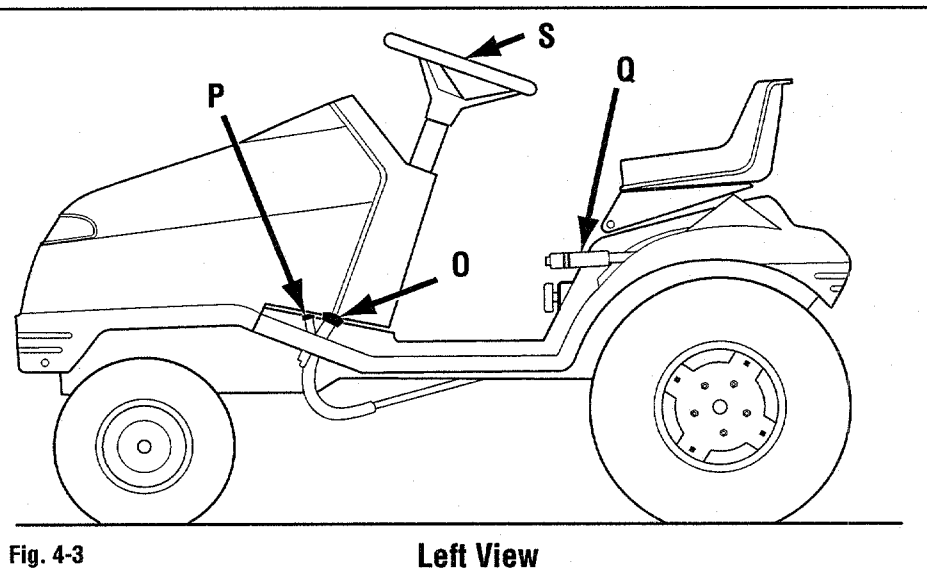
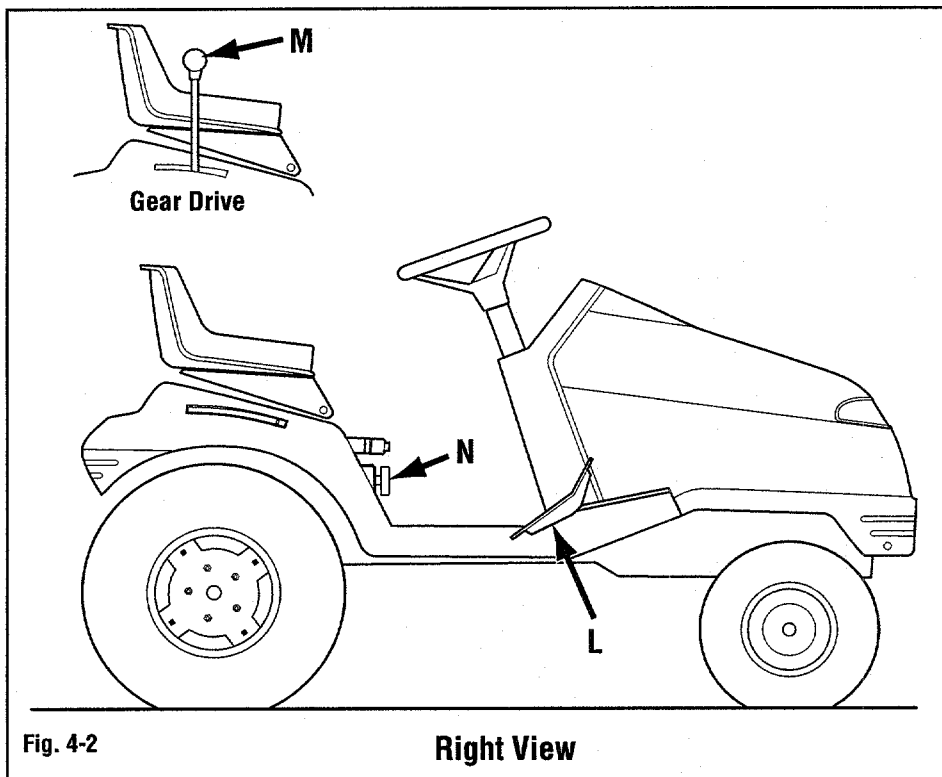
Controls power to main systems. An automotive-type, three-position switch:

- Stops engine.
- Starts engine. Release when engine starts.
- After starting, key returns to this position.

Note: Battery will discharge (and hour meter will run) if ignition switch is on when engine is not running.

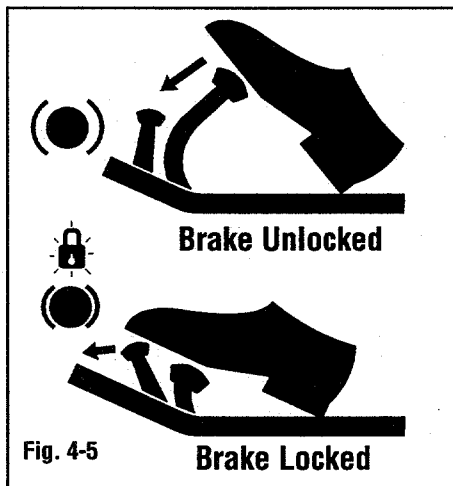
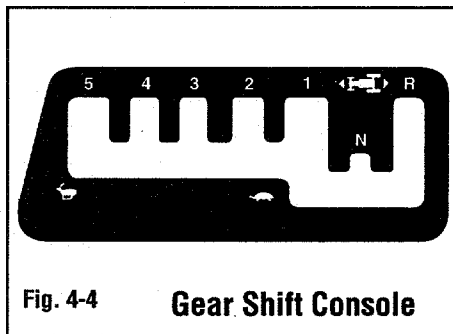
(B)—Choke Lever
Regulates fuel-air mixture to engine. Close choke (move lever up) when starting a cold engine. As engine warms up, open choke (move lever down). A warm engine requires little or no choking.

(C)—Throttle Lever
Controls engine speed. Always run engine at full throttle.
Note: Engine lubrication and cooling systems operate best at full throttle. Operating engine at less than full throttle for extended periods can effect performance of this system. Low throttle settings can also discharge battery.



(L, Fig. 4-2)—Travel Pedal [models 13096, 13097, 13099]
Controls forward and rearward movement of tractor. Pressing top of pedal moves unit forward, pressing bottom moves unit in reverse. Transmission is in neutral when pedal is centered.

(M, Figs. 4-2 & 4-4)—Gear Shift Lever [model 13095]
Controls forward and rearward movement of tractor. Also controls travel speed of unit. Five forward speeds, neutral and reverse speeds are available. See shifting pattern in Fig. 4-4.

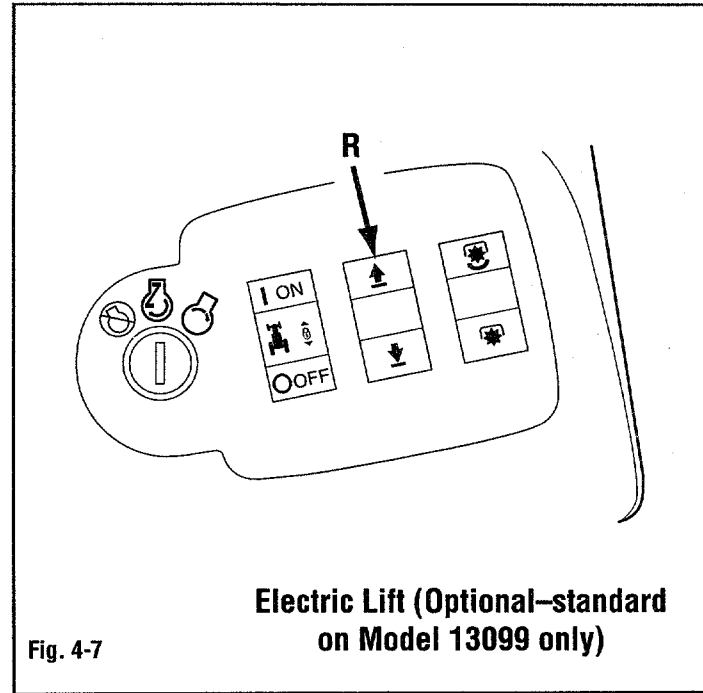
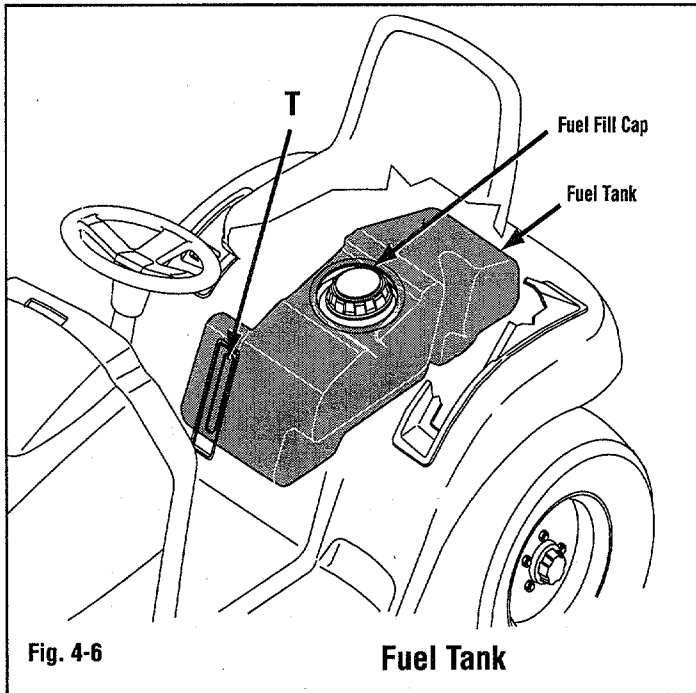


(N, Fig. 4-2)—Mower Height Adjusting Knob [models 13097, 13099]
Note: Use only when lift is in raised position.
Allows infinitely variable cutting heights for mower deck attachments. Rotating in “+” direction increases attachment height, rotating in “-” direction decreases attachment height. One rotation of knob moves deck 1/4”.

(O, Figs. 4-3 & 4-5)—Clutch/Brake Pedal
Press pedal to apply brake and disengage drive. Brake pedal does not stop attachment/PTO drive operation. Brake must be applied to start engine. **Note: Brake pedal must be fully depressed to engage parking brake. If brake is inoperative, service immediately—DO NOT OPERATE UNIT!**

(P, Fig. 4-3 & 4-5)—Parking Brake
Located just forward of brake pedal. To engage, fully depress brake pedal and press parking brake with toe. Brake pedal will remain depressed if parking brake is

Features & Controls (continued)



correctly set. **If parking brake will not engage, service brake immediately—DO NOT OPERATE UNIT!** Press and release brake pedal to disengage parking brake.

(Q, Fig. 4-3)—Attachment Lift Lever [not on model 13099/ electric lift equipped units]

Controls attachment lift. See page 20 for more detailed lift information.

Unlock lift before raising or lowering.

Lock lift down when cutting rough, uneven terrain and when using mulching decks. To lock, push lever completely down until button pops out. **Note: Always lock lift down when using mulching decks.**

R, Fig. 4-7)—Electric Lift Switch [Optional—standard on model 13099]
Allows finger-tip operation of attachment lift.

(S, Fig. 4-3)—Steering Wheel
Controls travel direction of unit.

(T, Fig. 4-6)—Fuel Level Window
Provides view of fuel tank. Fuel level is visible through fuel tank.

Operation

PRE-OPERATION CHECKLIST

Perform the following checks each time before using the unit:

⚠ WARNING
BEFORE OPERATING THE UNIT, READ AND UNDERSTAND ALL SAFETY, CONTROLS AND OPERATING INSTRUCTIONS IN THIS MANUAL. ALSO, READ ALL MATERIAL PROVIDED WITH ANY ATTACHMENTS TO BE USED WITH THE UNIT. READ AND FOLLOW ALL SAFETY AND OPERATING INSTRUCTIONS ON THE DECALS ON THE UNIT AND ATTACHMENTS.

⚠ CAUTION
DO NOT RUN ENGINE WITH HOOD OPEN. HOOD DAMAGE MAY OCCUR.

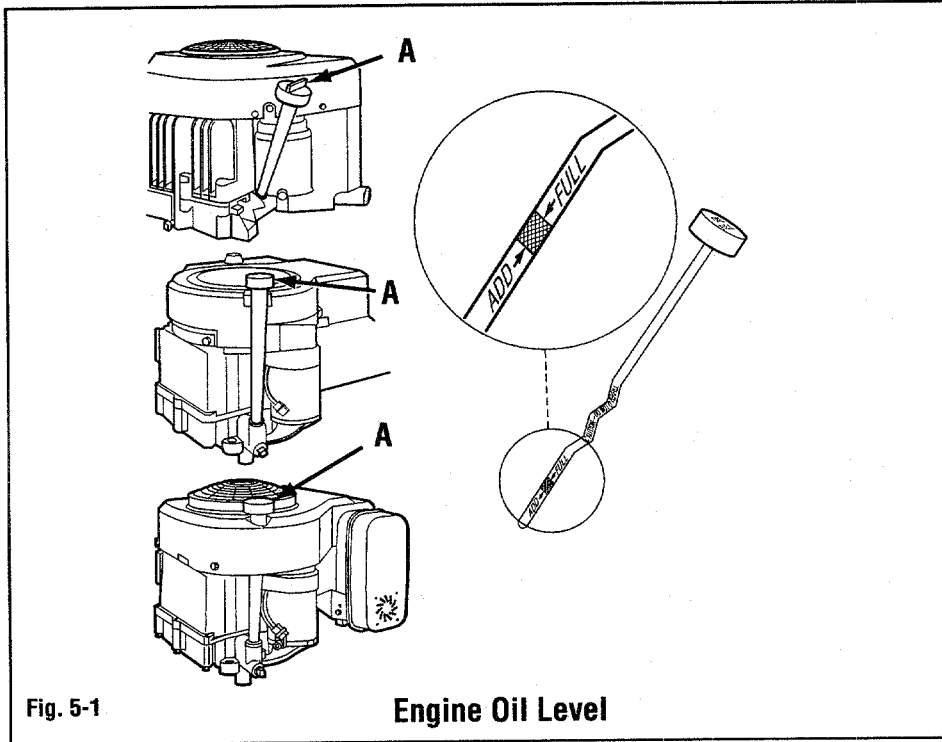


Fig. 5-1

Engine Oil Level

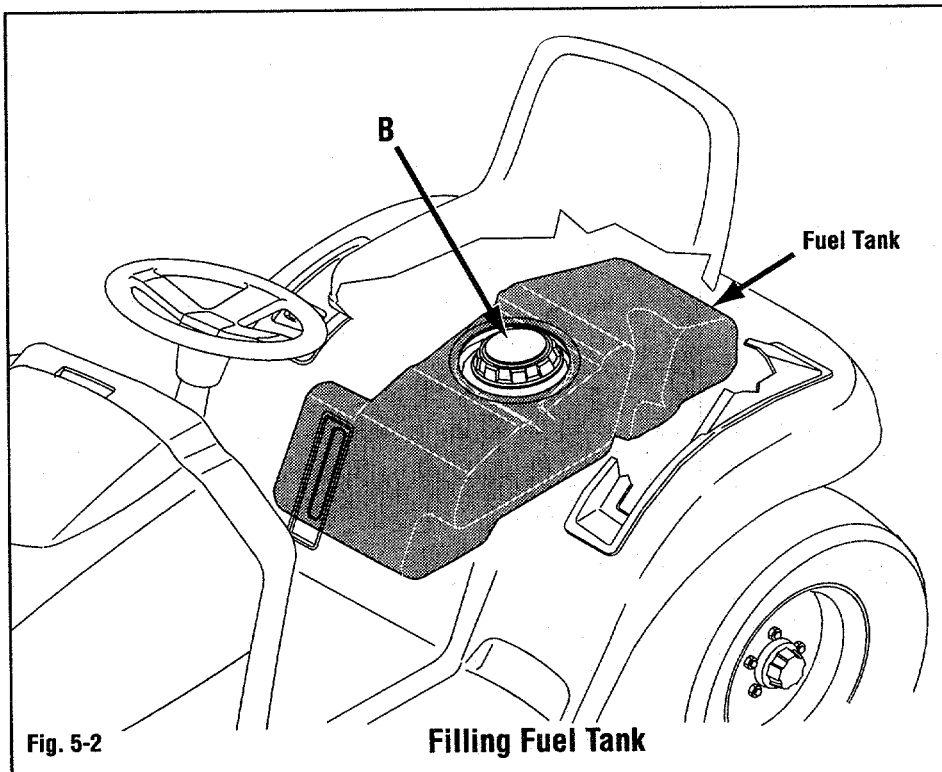


Fig. 5-2

Filling Fuel Tank

Engine

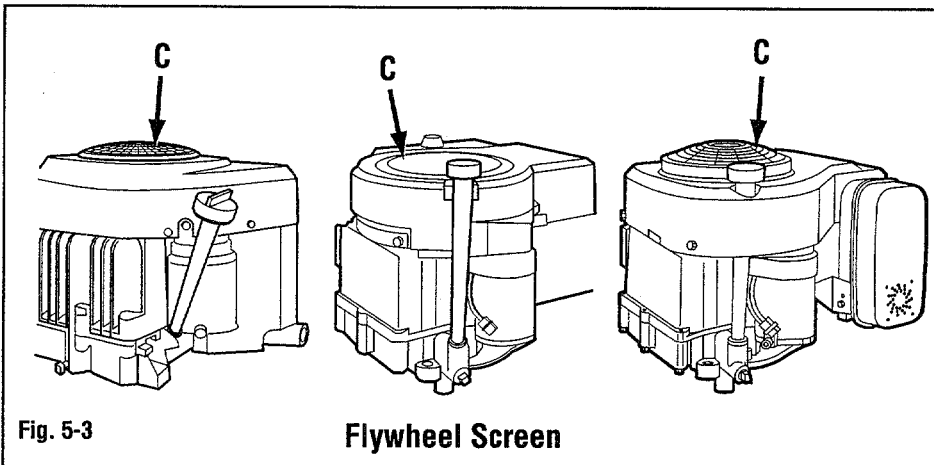
1. Check for proper engine oil level as follows:

- a. Remove oil dipstick (A, Fig. 5-1). Wipe oil from dipstick with clean cloth.
- b. Screw dipstick firmly back in place in engine.
- c. Remove dipstick and check oil level. Oil level is indicated by marks on dipstick. Level should be between "Full" and "Add" marks (Fig. 5-1).
- d. If necessary, add oil to crankcase through dipstick opening.

⚠ CAUTION
DO NOT ADD OIL BEYOND FULL MARK. ENGINE DAMAGE MAY OCCUR.

Determine type of oil by following recommendations indicated in the engine owners manual.

Operation (continued)



Engine flywheel screen (C, Fig. 5-3)

- 4. Check for debris and clean regularly. **DO NOT CLEAN FLYWHEEL WHILE ENGINE IS RUNNING!**

Battery

- 5. If the unit has not been used for an extended period of time, charge at 2 amps until specific gravity reading is 1.265 to 1.275. Charging may take several hours.

Visual Inspection

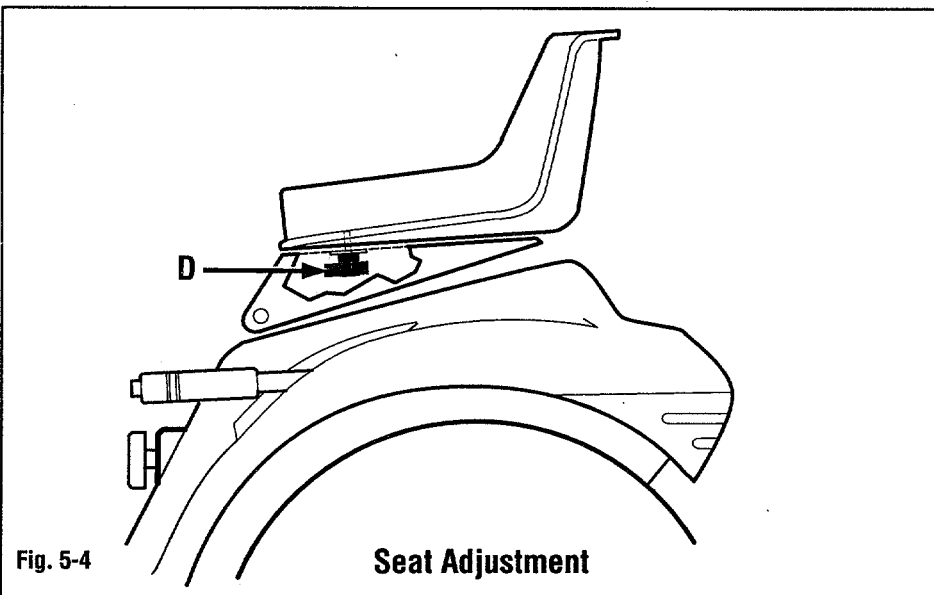
- 6. Check for:
 - a. Loose or missing wheel attachment hardware.
 - b. Damaged or illegible safety or instruction decals.
 - c. Worn or damaged belts.
 - d. Worn, damaged or missing attachment components, especially mower blades, guards and discharge deflectors.
 - e. Loose or damaged hardware.
 - f. Fuel, oil or electrolyte spills or leaks.

Repair or replace as necessary.

- 7. Inspect work area. Remove any debris from this area.

Tire pressure

- 8. (check at first use, every 25 hours thereafter)
 - a. Front—12 - 14 PSI (82 - 96 kPa)
 - b. Rear—8 - 10 PSI (55 - 69 kPa)



Note: Refer to the engine manual provided with the unit for specific engine oil information.

DO NOT MIX OIL WITH GASOLINE!

- 2. Check for and remove any dirt or debris present in engine compartment or air cleaner element.


Fuel Tank

- 3. Fill fuel tank with a good grade of clean, unleaded gasoline with an octane rating of 85 or higher. Fill fuel tank SLOWLY! Fuel fill cap (B, Fig. 5-2) is LARGE cap located under seat. Lift seat up and forward to access fuel fill. Leave ample room for fuel expansion.

WARNING

DO NOT REFUEL UNIT WHILE ENGINE IS RUNNING OR HOT. KEEP SMOKING MATERIALS, SPARKS AND FLAMES AWAY FROM GAS TANK AND FUEL CONTAINER. NEVER REMOVE GAS CAP OR ADD FUEL TO GAS TANK IF ENGINE IS RUNNING OR HOT. ALWAYS REPLACE GAS CAP BEFORE STARTING ENGINE.

Operation

- Do not start the unit until all the steps of the pre-operation checklist at the beginning of this section have been completed. After completing these checks, set parking brake (F, Fig. 5-6), place attachment/PTO drive switch (A, Fig. 5-5) into the  (disengaged) position. Unit will not start if brake (E) is not depressed and/or attachment/PTO drive is engaged.

Starting Procedure

- Sit in operator's seat.
- Move choke lever (B) all the way up to top of slot.
- Move throttle lever (C) halfway up.
- Insert key into ignition switch (D). Turn key clockwise to start engine. Release key when engine starts.

IN CASE OF FALSE START: If engine revs up enough to disengage starter but fails to continue running — allow all moving parts to stop completely before using starter again.

Limit continuous cranking to no more than 10 seconds. Longer cranking intervals will cause starter to overheat. Overheating may damage starter. If cranked for more than 10 seconds, allow starter to cool for at least one minute.

- When engine starts, move choke (B) halfway down (half choke).
- Gradually move choke lever all the way down (choke off) as engine warms up.

NOTE: Do not run engine with choke on for prolonged periods. Engine will run poorly (rich fuel mixture) if over-choked.

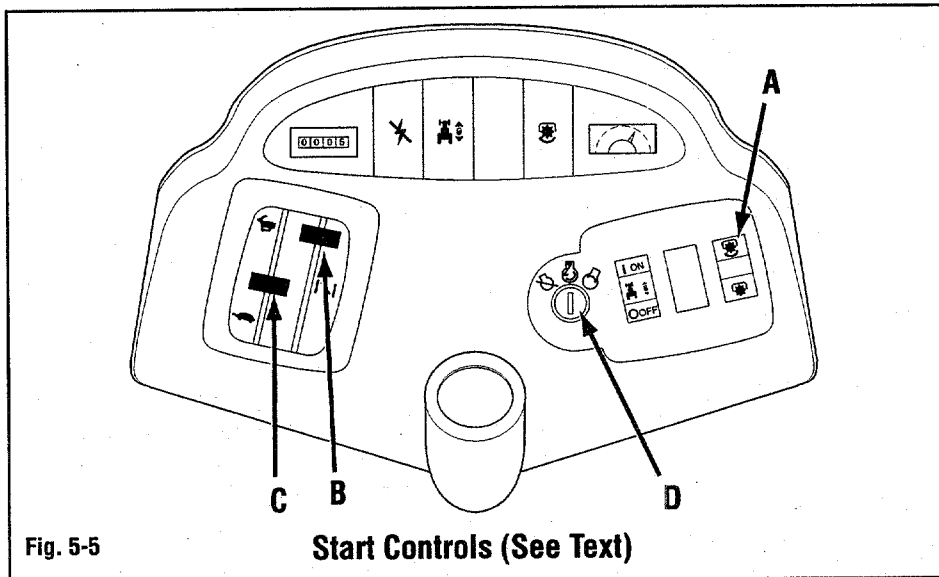


Fig. 5-5

Start Controls (See Text)

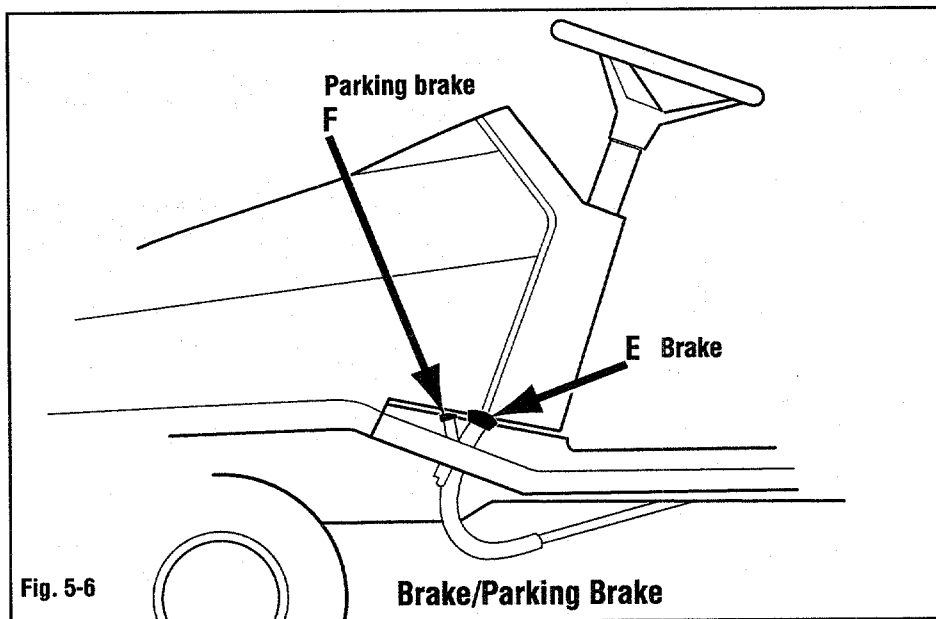


Fig. 5-6

Brake/Parking Brake

NOTE: Inflate both front tires evenly. Inflate both rear tires evenly. Unit will not be level if this instruction is not followed.


DO NOT OVER-INFLATE TIRES!

Seat

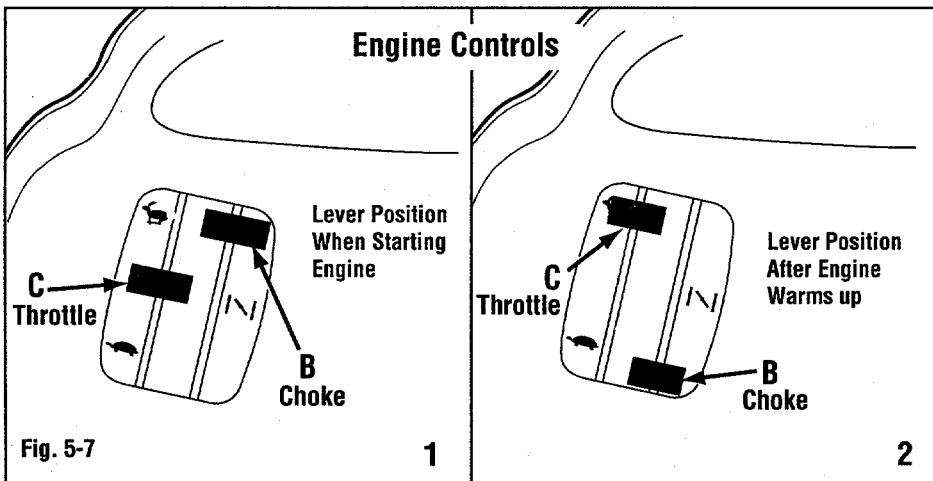
- ❑ 9. Adjust seat for comfortable access to all controls. To adjust, loosen hand knobs (D, Fig. 5-4) and move seat to desired position. Re-tighten knobs securely.

- ❑ 10. Place transmission shift lever (gear drive) or travel pedal (hydrostatic drive) into neutral position.

- ❑ 11. Set parking brake by fully depressing brake pedal and pushing down parking brake lock with toe.

- ❑ 12. Place attachment/PTO drive switch into the  (disengaged) position.

Operation (continued)



Warm Up

- Do not drive unit immediately after start up. Allow engine to idle for a few minutes. This allows components, such as the transmission, to reach operating temperature.


- Always run engine at full throttle. While operating under heavy load conditions, listen to engine RPM. If engine begins to slow down, use a slower travel speed. Reducing travel speed will decrease engine load.

Stopping Engine

- Place attachment/PTO drive switch into "OFF" position. Lower attachments to the ground.


- Place transmission into neutral and set parking brake.

- Move throttle lever to slow and idle engine for 15-30 seconds to allow engine to cool.

- Turn ignition key to . Remove key.

Interlock System Test Procedure

After starting, but before working with the unit, perform the following test:

- Park unit on a level surface so it does not roll when you release brake.
- With engine running, depress brake pedal and check to make sure attachment/PTO drive is disengaged (off).
- Place transmission into neutral.
- Release brake. Raise yourself several inches off seat. The engine should stop. If it stops, move to the next instruction. If it does not stop, have the unit serviced. **DO NOT OPERATE UNIT!**
- Depress brake pedal. Start engine. Switch attachment/PTO drive switch to the  (engaged) position.
- Raise yourself several inches off the seat again. The engine should stop. If it does not, have the unit serviced. **DO NOT OPERATE UNIT!**

WARNING

DO NOT OPERATE UNIT UNTIL PROPER INTERLOCK SYSTEM OPERATION HAS BEEN RESTORED. DO NOT ALTER OR ATTEMPT TO DEFEAT THIS SYSTEM. SEVERE PERSONAL INJURY CAN RESULT FROM NOT FOLLOWING THESE INSTRUCTIONS.

For general interlock system operation information, refer to Note 5-1.

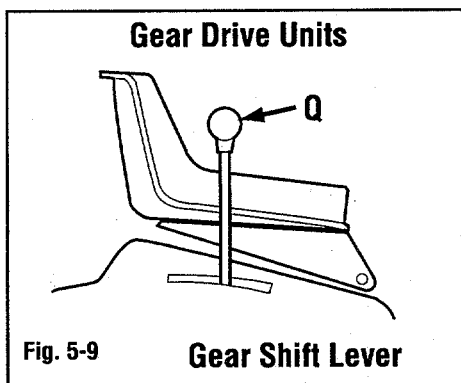
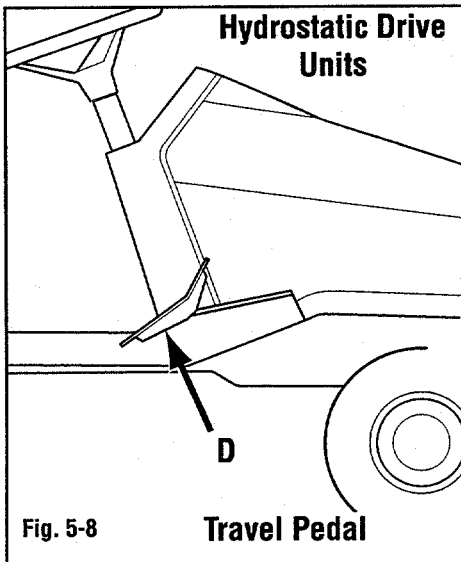
Drive System

Hydrostatic transmissions are used in models 13096, 13097, 13099. A gear drive transmission is used in model 13095. See Section 8, "Specifications" on page 35 to determine the specific transmission for the unit. The following describes the operation of each system.

Interlock System Operation

- Engine WILL start if both conditions A & B exist:
 - Brake pedal depressed.
 - Attachment/PTO drive disengaged (off).
- Engine WILL NOT start if one or both conditions C & D exist:
 - Clutch pedal not depressed/parking brake not set.
 - Attachment/PTO drive engaged (on).
- Engine WILL STOP if one or both conditions E & F exist:
 - Parking brake not set and seat not occupied.
 - Attachment/PTO drive engaged and seat not occupied.

Note 5-1

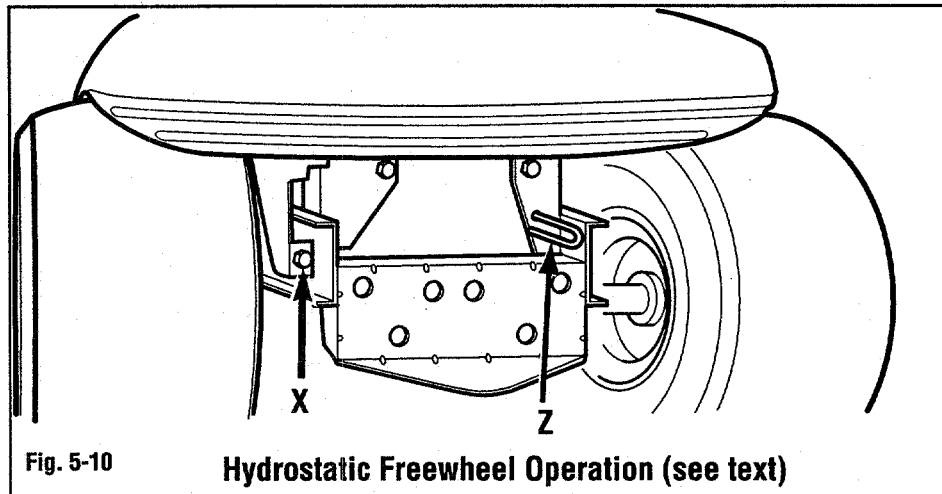


Hydrostatic Transmission

For maximum performance from the unit, always operate engine at full throttle. Control ground speed with travel pedal (D, Fig. 5-8). Press travel pedal at top (with toe) to move forward. Press pedal at bottom (with heel) to move in reverse. Centering pedal stops unit and places transmission in neutral. The hydrostatic transmission gives the operator an infinite choice of travel speeds. Avoid fast travel speeds when using attachments. Slower speeds work best when performing tasks such as snowthrowing, mowing and tilling.

Gear Drive Transmission

Depress clutch/brake pedal and move gear shift lever (Q, Fig. 5-9) into desired position. Select from five forward speeds, neutral and reverse. Avoid fast travel speeds when using attachments.



Slower speeds work best when performing tasks such as snowthrowing, mowing and tilling.

Transmission can be shifted while in motion and not under load. When operating with a mower, it is not necessary to press clutch/brake pedal down when changing gears.

CAUTION

DO NOT FORCE SHIFT LEVER WHEN PERFORMING THIS OPERATION. SHIFT CAREFULLY AND SMOOTHLY TO PREVENT TRANSMISSION DAMAGE.

DO NOT USE THE SHIFT ON THE GO PROCEDURE WHEN TRANSMISSION IS UNDER HEAVY LOAD (TILLING, PLOWING, SWEEPING, BLOWING SNOW OR PULLING HEAVY LOADS) OR WHEN OPERATING ON SLOPES.

DO NOT USE 4TH OR 5TH GEAR ON SLOPES WHEN UNDER LOAD.

FAILURE TO FOLLOW THESE INSTRUCTIONS WILL RESULT IN TRANSMISSION FAILURE. DAMAGE CAUSED BY NOT FOLLOWING THESE INSTRUCTIONS IS NOT COVERED UNDER WARRANTY.

WARNING

DO NOT LEAVE THE UNIT UNATTENDED WITHOUT THE PARKING BRAKE SET. THE UNIT COULD ROLL AND CAUSE SEVERE PERSONAL INJURY OR PROPERTY DAMAGE.

Moving Unit Manually

CAUTION

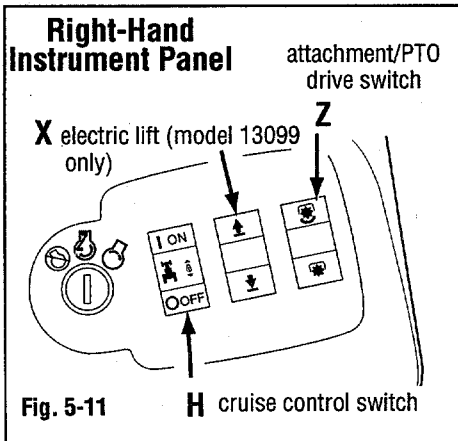
DO NOT TOW OR PUSH TRACTOR WITH ANOTHER VEHICLE. DAMAGE TO TRACTOR DRIVE SYSTEM WILL RESULT.

Gear Drive Units: Place gear shift lever (Q, Fig. 5-9) into neutral position before pushing unit.

Models 13097 & 13099: Pull hydrostatic freewheeling actuator (Z, Fig. 5-11) out and rotate to place into the locked position before pushing unit. After pushing unit, return the freewheeling actuator back to the normal position. Transmission will not engage when freewheeling actuator is pulled out.

Model 13096: The unit can be moved by hand any time the engine is not running and the brake is not depressed (on).

Operation (continued)



Brake Check

Drive unit slowly and check clutch/brake operation by depressing clutch/brake pedal (E, Fig. 5-6). Unit should stop. Set parking brake by pressing parking brake pedal (F) with toe when brake pedal (E) is fully depressed. To release parking brake, depress clutch/brake pedal (E) and release. If any problems are found, stop and service unit before continuing.

Steering Check

Drive unit slowly while turning steering wheel. Check for binding, sloppy or restricted movement. Stop unit and service any problems before continuing.

Cruise Control [model 13099 only]

Cruise is available on model 13099 only. Cruise control allows the operator to maintain a constant drive speed without contacting the travel pedal. When activated, cruise control sets travel pedal at the desired position.

TO SET: Press switch to "ON" (H, Fig. 5-11) to activate speed control.

TO STOP: Press brake pedal or turn cruise control switch off.

Attachments

Attachments for the unit are supplied with literature containing important safety, operation and maintenance information. Read and understand all literature provided with any attachments to be used with the unit before use.

Attachment/PTO Drive ELECTRIC CLUTCH BREAK-IN PROCEDURE

Note: Perform this step with mower deck or snowthrower attachment mounted on unit.

With engine running at full throttle, engage and disengage attachment/PTO drive switch 10 to 15 times. Engage attachment drive at 3/4 throttle, during break-in. Perform this step before initial use and after extended storage. See Section 2, "Attachments & Kits" for specific attachment and kit descriptions.

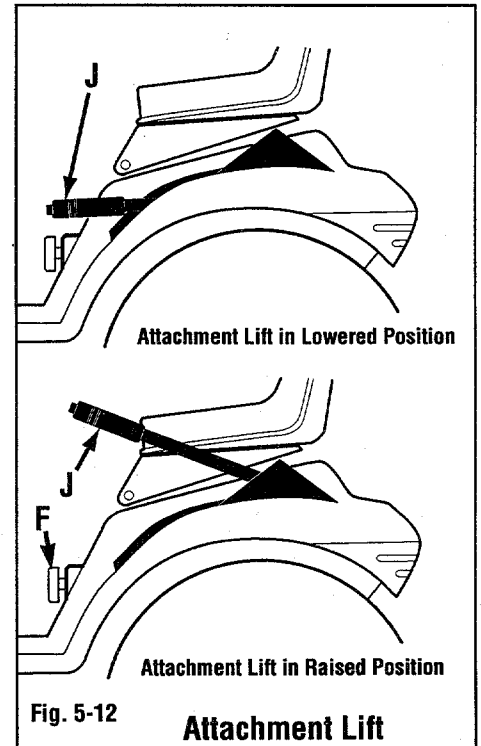
Attachment/PTO drive is controlled by attachment/PTO drive switch (Z, Fig. 5-11).

ATTACHMENT LIFT

Before using attachment lift, make sure the attachment is completely and properly secured. Read all literature provided with attachments to be used with the unit.

It is possible to customize tractor lift mechanism to operator and terrain. To adjust spring tension, tighten or loosen screw (X, Fig. 5-10).

Note: Incorrect lift spring adjustment may require a large amount of force to operate lift. Correct adjustment will eliminate this problem



Ground Following Cutting Method

This method allows attachment to follow ground contours. This is the recommended method used when operating attachments such as snowthrowers, tillers, etc. See owner/operator manual provided with your attachment for more information.

Note: Height adjustment knob (F, Fig 5-12) must be turned to the full-down position when ground contour cutting. (models 13097 & 13099 only)

Frame Hung Cutting Method [models 13097 & 13099 only]

"Frame hung cutting" is recommended when cutting over smooth terrain. This method allows the mower deck to hang from tractor frame if deck contacts a bump, front anti-scalp wheels and rear gage wheels contact ground and lift deck to avoid scalping.

Basic Lift Operation

Unlock lift before raising or lowering.

Lock lift down when cutting rough, uneven terrain. To lock, push lever completely down until button pops out.

TO UNLOCK LIFT WHEN IN RAISED POSITION: Pull lift lever up slightly to unload lift mechanism. Press button at front of lift lever to release lock.



TO UNLOCK LIFT WHEN IN LOWERED POSITION: Push lift lever down slightly to unload lift mechanism. Press button at front of lever to release lock.

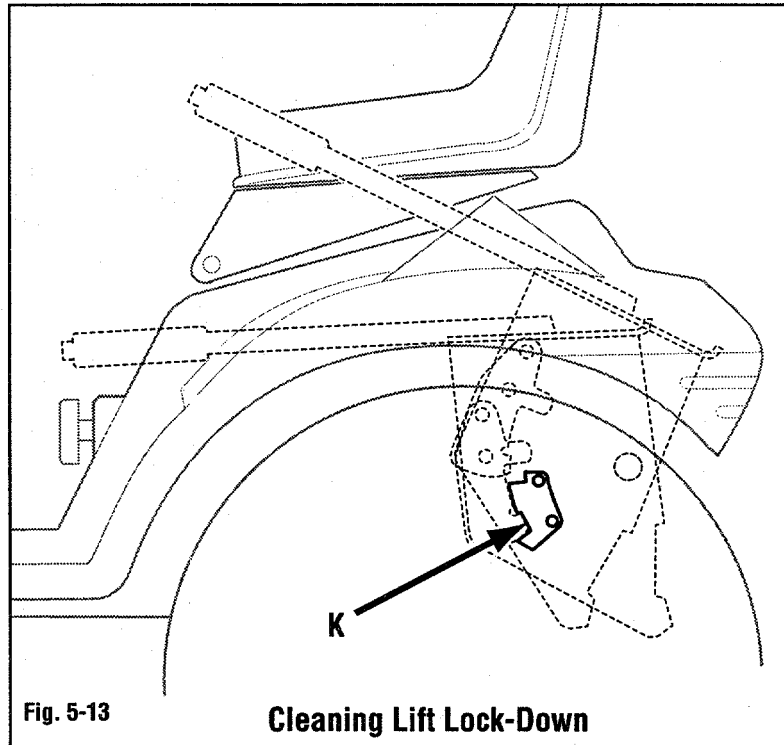
TO RAISE OR LOWER LIFT: Release button. Pull lift lever up to raise attachment, push down to lower attachment. To lock, push lever completely down (or up) until button pops out.

Lift Lock-Down Cleaning

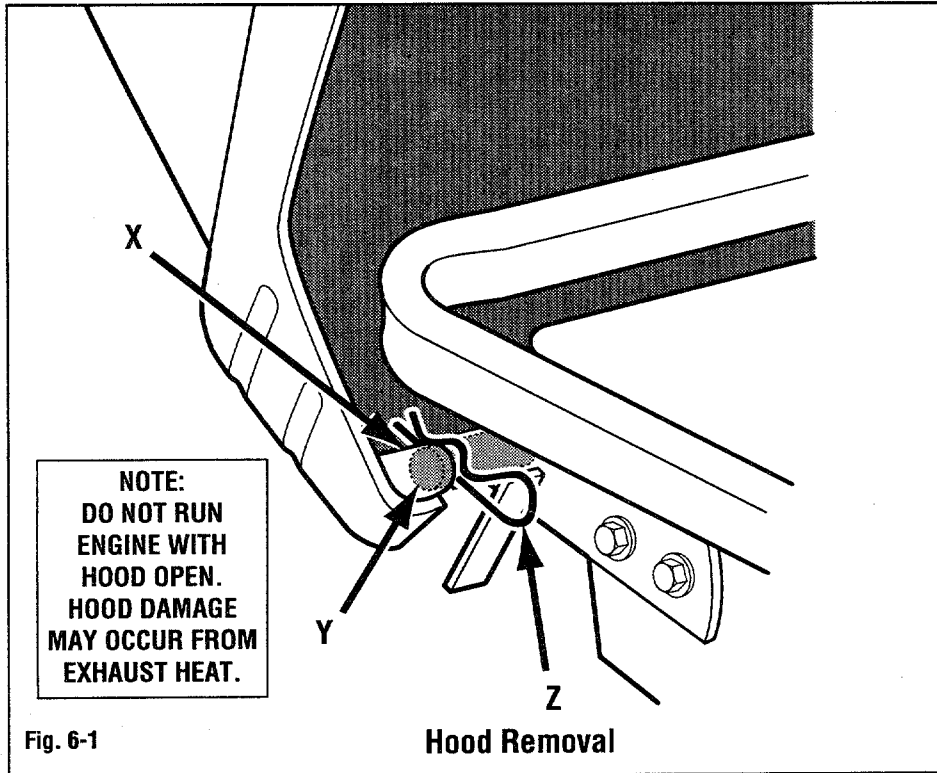
Whenever changing attachments or at the end of each season, inspect lift lock-down (K, Fig. 5-13) and clean out any debris. Debris can build up in this area and may prevent proper lift lock-down operation.

Electric Lift Operation (optional—standard on model 13099 only)

Press the top of the electric lift switch (X, Fig. 5-11) at  to raise the attachment. Press the bottom of the electric lift switch at  to lower the attachment. The frame hung method is used unless the lift is all the way down. Lowering the lift all the way down allows the attachment to be ground following.



Maintenance



⚠ WARNING

BEFORE PERFORMING ANY SERVICE, ADJUSTMENTS OR MAINTENANCE ON THE TRACTOR, ENGINE OR ATTACHMENTS:

- A. PARK THE TRACTOR ON A FIRM AND LEVEL SURFACE.
- B. DISENGAGE ATTACHMENT/PTO DRIVE.
- C. LOWER THE ATTACHMENTS.
- D. MOVE ALL CONTROL LEVERS TO NEUTRAL.
- E. APPLY PARKING BRAKE.
- F. SHUT OFF ENGINE. REMOVE IGNITION KEY AND ALLOW ENGINE TO COOL.

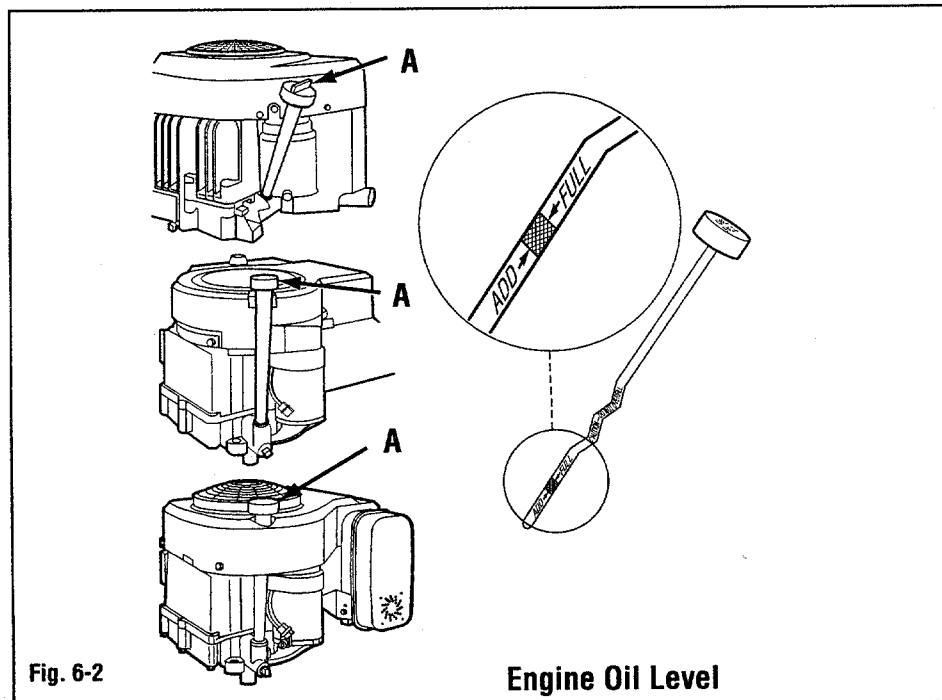
Preventive Maintenance

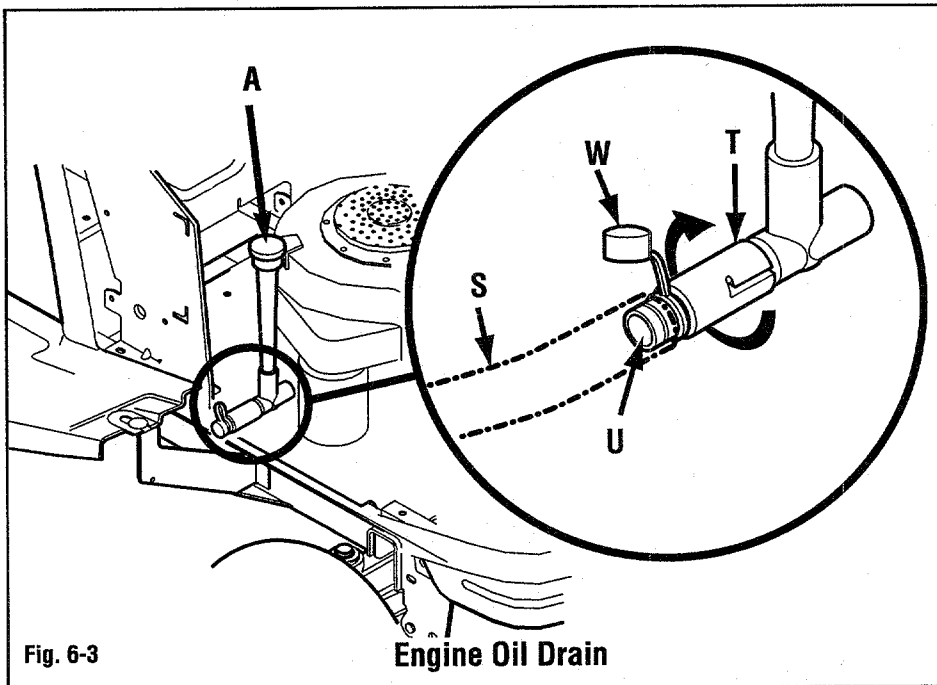
Preventive maintenance results in longer operating life and better performance. The warranty does not cover items subjected to operator abuse or negligence. To receive full value from warranty, operator must maintain unit as instructed in this manual.

NOTE: This manual does not contain complete service information. Your dealer can provide you with complete service on the unit.

⚠ CAUTION

USE ONLY FACTORY-APPROVED REPLACEMENT PARTS FOR MAINTENANCE OR REPAIR. PARTS MANUFACTURED BY OTHERS MAY PRESENT SAFETY HAZARDS EVEN THOUGH THEY MAY FIT ON THE UNIT.





Remove dipstick. Oil level must be between "ADD" and "FULL" marks on dipstick. Do not overfill. Oil level must not exceed "FULL" mark on dipstick.

ADD OIL: Remove oil fill cap (A, Fig. 6-2) and add oil.

NEW ENGINE: Change oil after first 5 hours of use, then change oil regularly as specified on the lubrication chart on page 33.

Change Oil: Change oil as specified in engine manual. Drain oil while it is hot. Hot oil flows more freely and carries away more impurities.

- Remove oil fill cap (A, Fig. 6-3).
- Remove protective cap (W) to expose oil drain port (U) on oil drain fixture (T).

- Push oil drain hose (S) (included with unit) onto oil drain fixture. Route other end of hose to an appropriate waste oil collection container.

- Twist oil drain fixture to open position. Pull out. Drain oil completely.

- Push in and twist oil drain fixture to the closed position. Remove and store hose (S). Replace protective cap (W).

- Re-fill engine with oil through dipstick opening. See engine owners manual for correct oil specifications. Fill to level between "ADD" and "FULL" marks on dipstick.

For complete engine lubrication information, including engine oil specifications & capacities, refer to the engine owners manual provided with the unit.

Hood Removal

Open hood. Unplug headlight harness from headlights. On left side of unit, remove hair pin (Z, Fig. 6-1). Pull pivot pin (Y) into frame until it clears hood. Remove hood.

⚠ CAUTION

HOOD RETAINING HARDWARE MAY BECOME HOT FROM ENGINE EXHAUST. BURNS MAY RESULT. DO NOT REMOVE HOOD WITHOUT FIRST STOPPING ENGINE AND ALLOWING THESE PARTS TO COOL.

⚠ CAUTION

DO NOT RUN ENGINE WITH HOOD OPEN. HOOD DAMAGE MAY OCCUR.

Hood Installation

Insert right side of hood onto pivot on tractor frame. Insert pivot pin (Y) so the outside end is flush with the outside of frame. Position pivot hole in left side of hood (X) over pivot pin (Y).

Push pivot pin (Y) out until hole for hair pin (Z) is visible (it may be necessary to rotate pivot pin to access hole). Retain pivot pin and hood with hair pin (Z).

Engine Service

For complete engine service, contact an authorized engine dealer. To locate an authorized engine dealer, refer to the "Yellow Pages" under "Engines—Gasoline" or "Gasoline—Engines". Provide the dealer with the engine model and serial numbers. Routine engine service is described below. For more detailed engine service information, refer to the engine manual provided with the unit. Refer to the serial number tag on engine to determine the specific engine model, type and specification numbers.

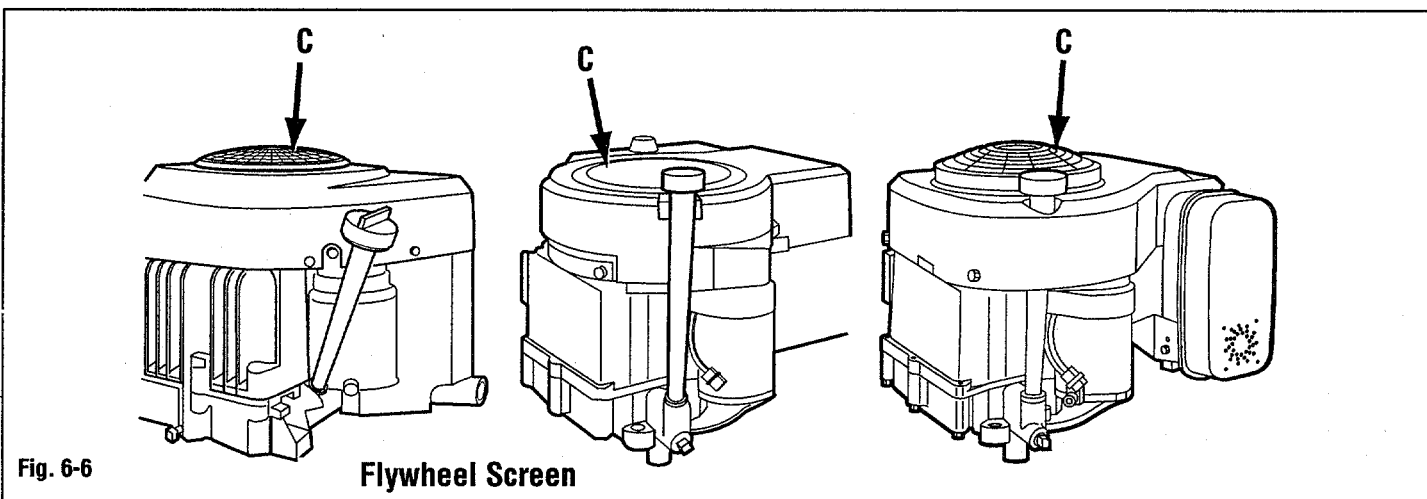
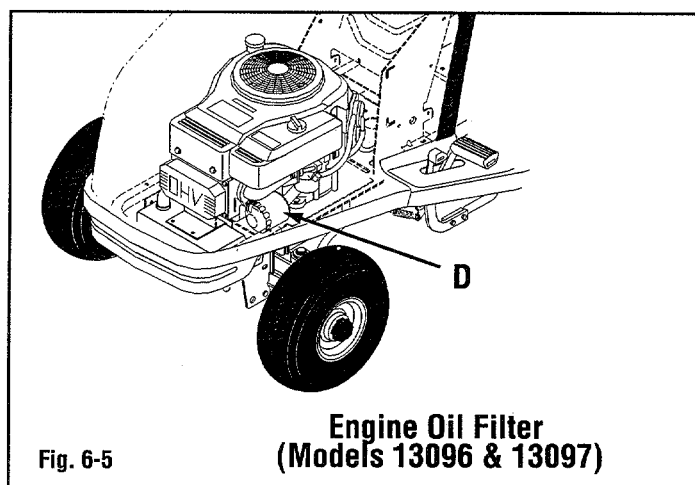
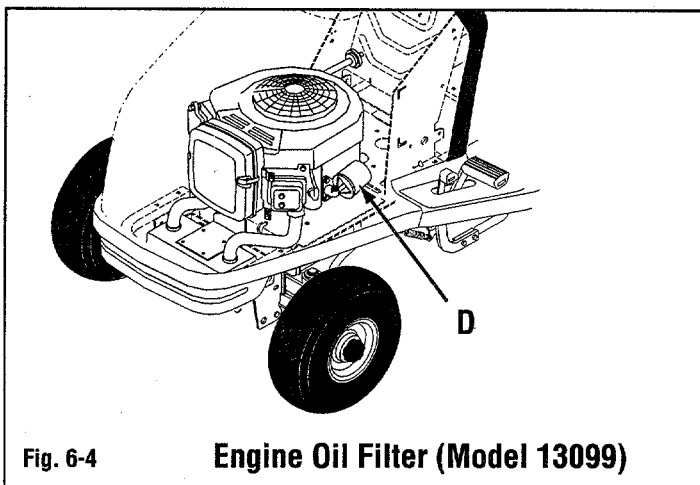
Engine Oil

Engine oil level must be between "ADD" and "FULL" marks on dipstick at all times. Check before each use.

CHECK OIL LEVEL:

Clean area around dipstick (A, Fig. 6-2) so dirt does not fall into crankcase when dipstick is removed.

Maintenance (continued)



Engine Oil Filter (Models 13096, 13097, 13099 only)

Replace oil filter (D, Figs. 6-4 & 6-5) as indicated in engine owners manual. Before installing new filter, lightly oil filter gasket with fresh, clean engine oil. Screw filter on by hand until gasket contacts filter adapter. Tighten 1/2 to 3/4 turn farther. After oil is added, start and run engine. Check for oil leaks. Stop engine, recheck oil level and add oil if required.

NOTE: Please dispose of all waste materials in an ecologically responsible manner. **DO NOT** dispose of waste materials such as oil, fuel, coolant, brake fluid, filters, batteries, battery acid or other waste materials onto the ground, down a drain, or into a stream, pond or lake. Contact local environmental authorities for proper waste material disposal information. Use proper waste material storage containers.

⚠ WARNING

DO NOT USE FOOD OR BEVERAGE CONTAINERS TO STORE WASTE MATERIALS. USING SUCH CONTAINERS COULD RESULT IN ACCIDENTAL POISONING.

Flywheel Screen (C, Fig. 6-6)

STOP ENGINE BEFORE CLEANING FLYWHEEL! Check for debris and clean regularly. A dirty air screen and engine can cause engine to overheat.

Fuel Filter

The fuel filter (E, Fig. 6-7) is located in the fuel line and filters fuel flowing from the fuel tank. This filter is disposable. Replace annually or when dirty. Refer to engine owners manual for more complete fuel

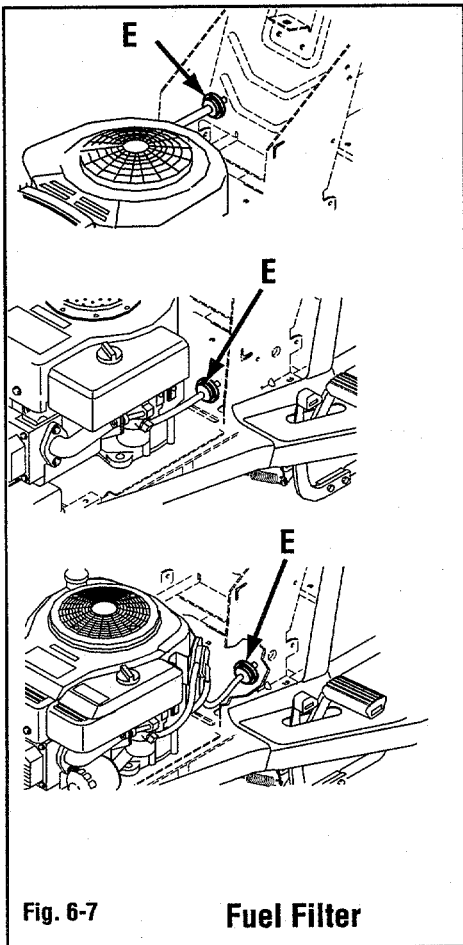


Fig. 6-7 Fuel Filter

filter service information. Before replacing filter, drain fuel tank by running engine until unit stops.

Air Cleaner

Improper air cleaner maintenance can cause engine damage.

Service schedules and cleaning instructions are the same for all engines, even though air cleaner designs may differ (Figs. 6-8 & 6-9).

SERVICE SCHEDULE:

Outer foam pre-cleaner: Wash and re-oil every 25 operating hours or every season, whichever occurs first.

Inner paper cartridge: Clean or replace every 100 operating hours or every season, whichever occurs first.

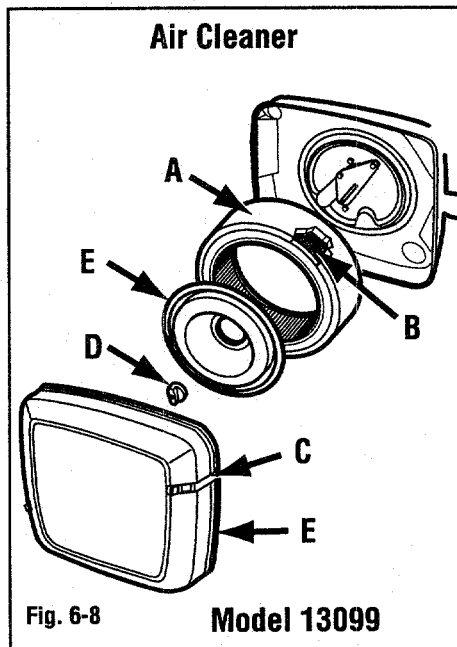


Fig. 6-8 Model 13099

AIR CLEANER SERVICING (Figs. 6-8 & 6-9)

- Unhook clips (C) and/or remove knobs (D). Remove covers (E). Lift out paper cartridge (B) and foam pre-cleaner (A). Separate foam pre-cleaner from paper cartridge.
- Wash foam pre-cleaner (A) in liquid detergent and warm water. Squeeze dry in a clean cloth.
- Saturate foam pre-cleaner in clean engine oil. Wrap in clean, absorbent cloth and squeeze to remove *all excess* engine oil.
- Clean or replace paper cartridge (B) if necessary. To clean: Tap gently against a flat surface. If very dirty, replace.
- Reassemble air cleaner components. Tighten knobs (D) securely. Clip cover assembly (E) onto air cleaner body.

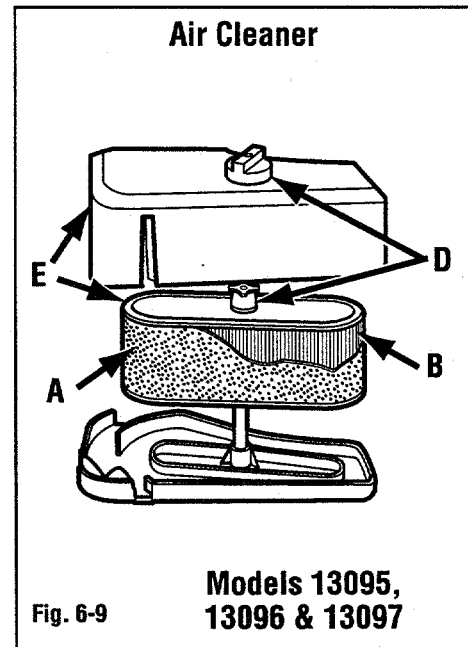


Fig. 6-9 Models 13095, 13096 & 13097

Carburetor

The carburetor is adjusted at the factory. It should not need to be reset. If a black exhaust is noted, check the air cleaner first. An over-rich mixture is usually caused by a poorly serviced or clogged air cleaner element, not an improperly adjusted carburetor. If readjustment is necessary, refer to engine manual or contact your dealer for servicing.

Battery

Remove battery cables before removing battery. Remove negative (-) cable first, then positive (+) cable. Always check polarity of battery terminals. Make sure battery is not reversed. Negative (-) cable is ground.

Charge at 2 amps until specific gravity reading is 1.265 to 1.275. Charging may take several hours.

Maintenance (continued)

⚠ WARNING

BATTERIES GIVE OFF HIGHLY EXPLOSIVE GAS DURING AND FOR SOME TIME AFTER CHARGING. DO NOT ALLOW A SPARK OR OPEN FLAME NEAR BATTERY. USE A FLASHLIGHT TO CHECK ELECTROLYTE LEVEL.

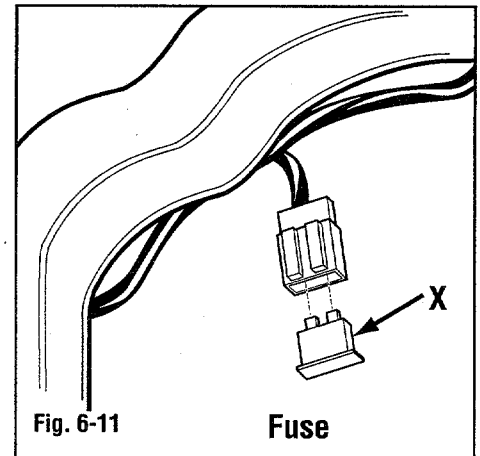
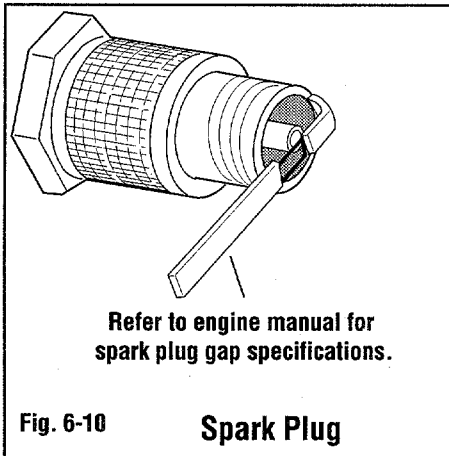
Spark Plug (Fig. 6-10)

Every 50 operating hours or every season, remove and check the condition of the spark plug. Do not service a plug in a poor condition. Best results are obtained with a new plug. See the engine owner manual to determine the proper replacement spark plug specifications.

Fuse

There is one fuse (X, Fig. 6-11) located under hood in wiring harness behind instrument panel. Replace as necessary with standard 20-amp, automotive-type fuse.

NOTE: A blown fuse is a symptom of an electrical problem. Simply replacing fuse DOES NOT correct such a problem.

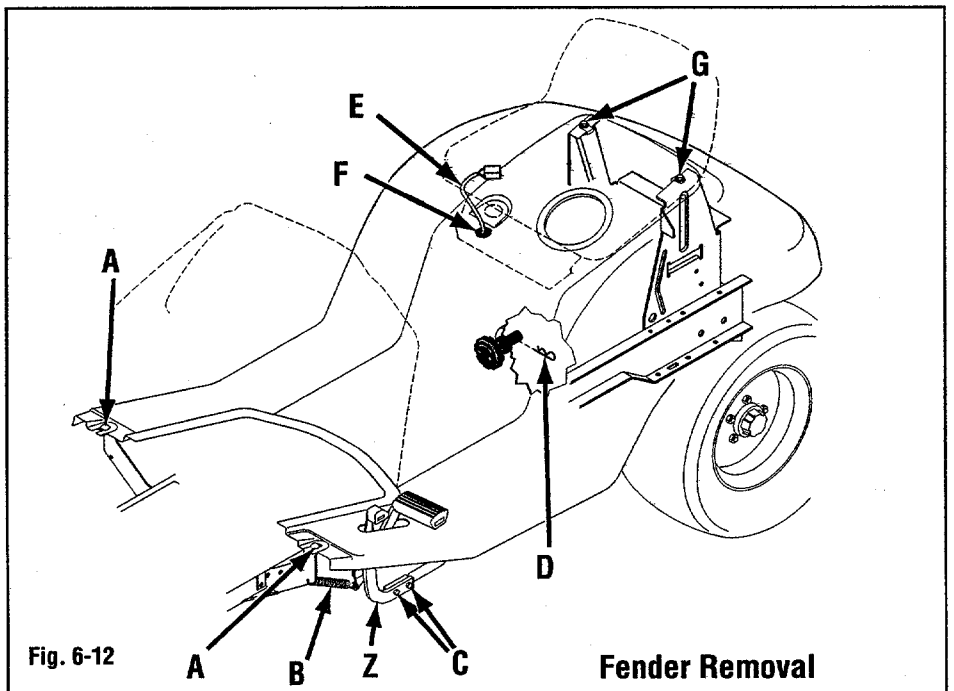


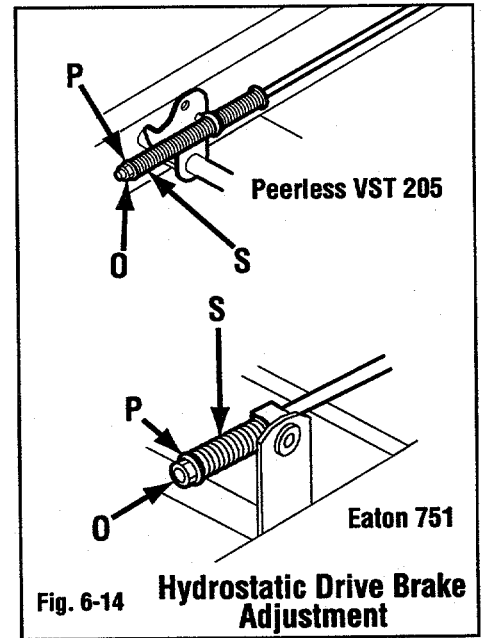
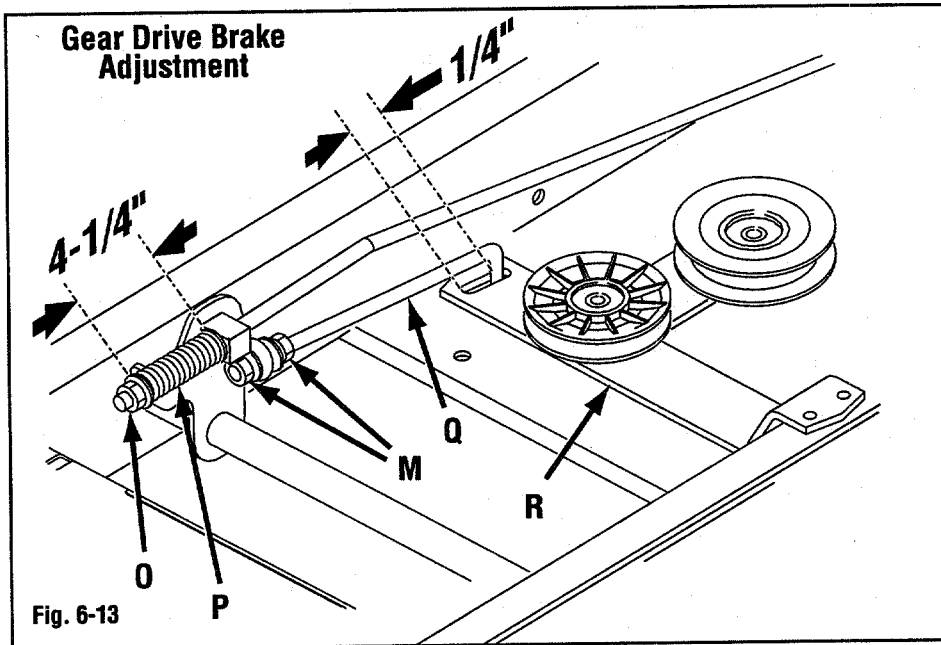
Fender Removal

Fender removal is simple and provides excellent access to drive and lift systems. It is not necessary to remove fender to perform basic maintenance. **NOTE: Lifting fender from unit requires two people.**

- GEAR DRIVE UNITS: Unscrew and remove gear shift knob from shift lever.
- ALL UNITS: Place lift lever into UP position.
- Remove bolts and nuts retaining two front edges of fender to frame (A, Fig. 6-12).

- Unhook brake lock return spring (B).
- Remove bolts and nuts (C) securing brake pedal assembly to brake arm. Remove brake pedal assembly.
- (Models 13097 & 13099) Reach under fender and remove hair pin (D) securing lift height adjusting knob. Remove knob.
- Loosen hand knobs under seat and move seat back. Re-tighten hand knobs.
- Disconnect seat switch lead (E) from seat switch. Push lead and rubber grommet (F) down through fender.





- Remove bolts (G) securing top of fender to frame.

- With an assistant, lift fender back and up off of unit. **NOTE: Gear drive units require gear shift lever to be pulled in slightly to clear fender.**

Fender Installation

Install fender by reversing removal sequence. Re-assemble with brake pedal assembly (Z, Fig. 6-12) to outside of brake arm. Tighten all hardware (C) securely.

Brake Adjustment

Adjustment is required if brake does not hold the tractor when parking brake is set. Adjust brake in disengaged position.

GEAR DRIVE:

- Adjust locknut (O, Fig. 6-13) so spring (P) measures 4-1/4" long.
- Adjust locknuts (M) so a gap of 1/4" exists between clutch rod (Q) and front of slot in idler bracket (R).

HYDROSTATIC DRIVE:

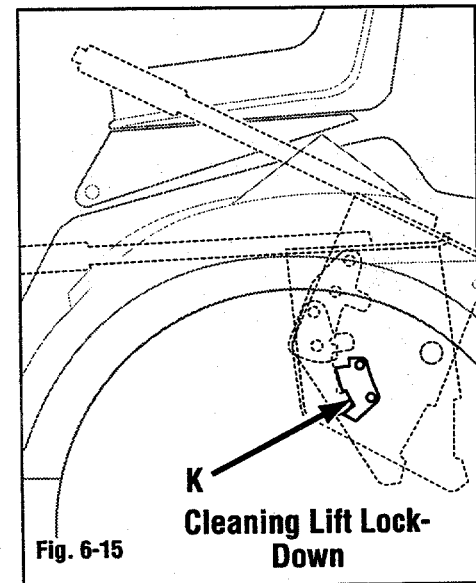
- Adjust locknut (O, Fig. 6-14) so a gap of 1/16" exists between washer (P) and spring (S).

ALL UNITS:

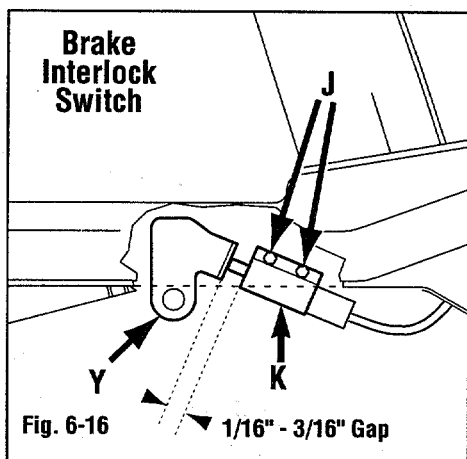
- Press and release brake several times. Re-check and re-adjust as necessary.

Lift Lock-Down Cleaning

Whenever changing attachments or at the end of each season, inspect lift lock-down (K, Fig. 6-15) and clean out any debris. Debris can build up in this area and may prevent proper lift lock-down operation.



Maintenance (continued)



Brake Interlock Switch Adjustment
Set parking brake. Adjust brake interlock switch (K, Fig. 6-16) at screws (J) as required to provide a 1/16" to 3/16" gap.

Gear Drive Shift Linkage Adjustment
With gear shift lever in "N" (neutral) position, it should be possible to push unit forward or backward. With gear shift lever in "R" (reverse) or "1st" position, transmission should catch and hold when unit is pushed. Adjust, if necessary, as follows:

- Place gear shift lever into "N" (neutral) position.
- Loosen nut (X, Fig. 6-17) securing the shift shaft arm (Y) to the shift lever. Rotate the shift shaft arm (Y) slightly forward if the unit runs forward when in neutral. Rotate the shift shaft arm (Y) slightly backward if the unit runs in reverse when in neutral. See detail, Fig. 6-17. Tighten nut (X). Check adjustment. Repeat as necessary.

Gear Drive Shift Cable Adjustment
Place gear shift lever into "1st" gear position. Gear shift lever should be resting on outside quadrant edge (W, Fig. 6-18). Pull gear shift lever (L, Fig. 6-17) in toward center of unit until slack in shift cable (M, Fig. 6-17) is taken up. Adjust shift cable at (Z & O, Fig. 6-17) until a 3/8" gap between outside of shift lever and shift quadrant (Fig. 6-18) exists.

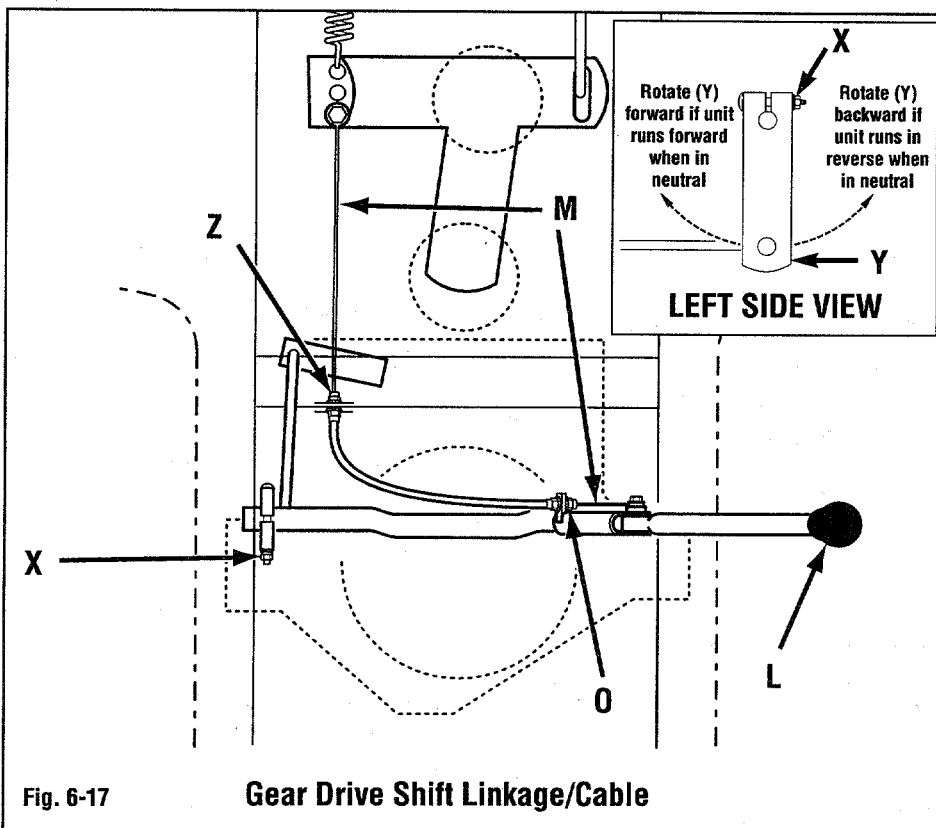


Fig. 6-17

Gear Drive Shift Linkage/Cable

Hydrostatic Neutral Adjustment (models 13097 & 13099)

Hydrostatic neutral adjustment is set at the factory. If the tractor creeps forward or backward while hydrostatic pedal is in the neutral position, adjust as follows:

- Place hydrostatic travel pedal into "N" (neutral) position.
- Securely block up rear of tractor so rear wheels clear ground.

- Set parking brake.

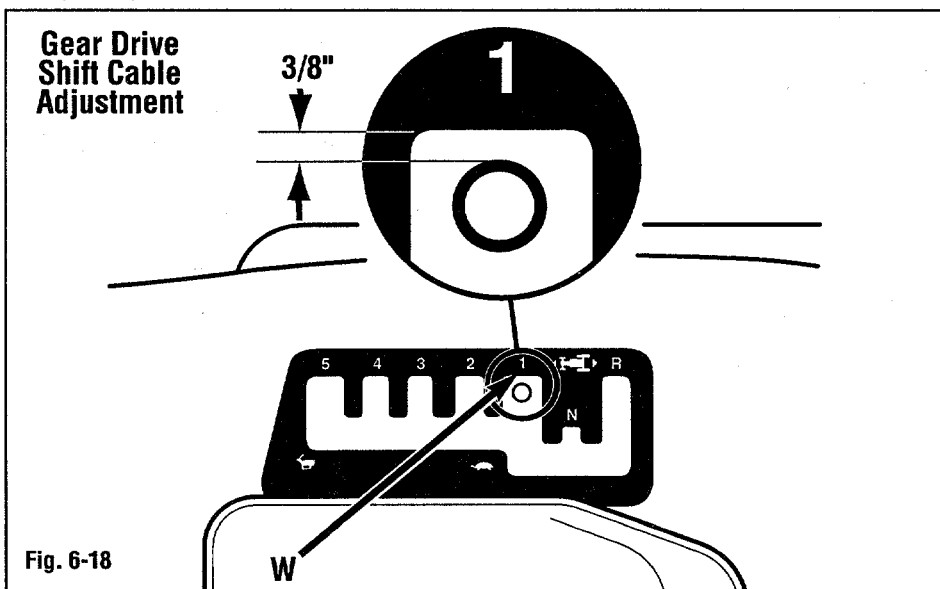


Fig. 6-18

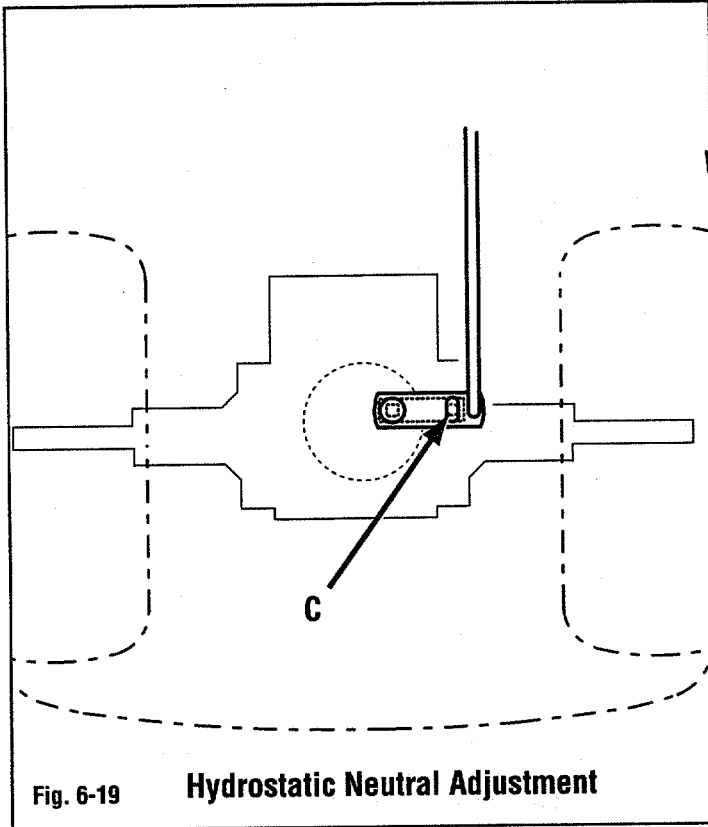


Fig. 6-19

Hydrostatic Neutral Adjustment

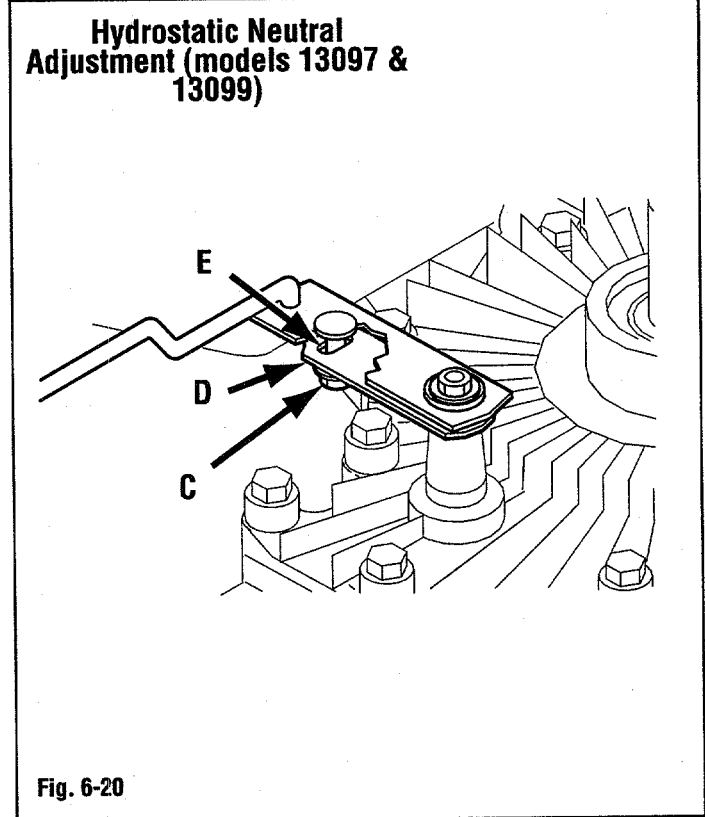


Fig. 6-20

⚠ WARNING

USE EXTREME CARE WHEN JACKING OR HOISTING TRACTOR. BLOCK WHEELS AND USE JACKSTANDS TO SECURELY HOLD UNIT IN PLACE.

- Loosen hardware (C, Figs. 6-19 and 6-20) securing hydro control arm in place.

- Start unit.
- Release parking brake.

⚠ WARNING

USE EXTREME CARE WHEN WORKING AROUND MOVING PARTS. REMOVE ANY JEWELRY. ROLL UP LONG SLEEVES. TIE UP OR RESTRAIN LONG HAIR. KEEP HANDS CLEAR OF ROTATING HYDROSTATIC COOLING FAN AND BELT.

- Adjust hydro control arm (D, Fig. 6-20) along slot (E) until rear wheels do not move.

Note: Move arm to the front if unit creeps in reverse; move arm to the rear if unit creeps forward.

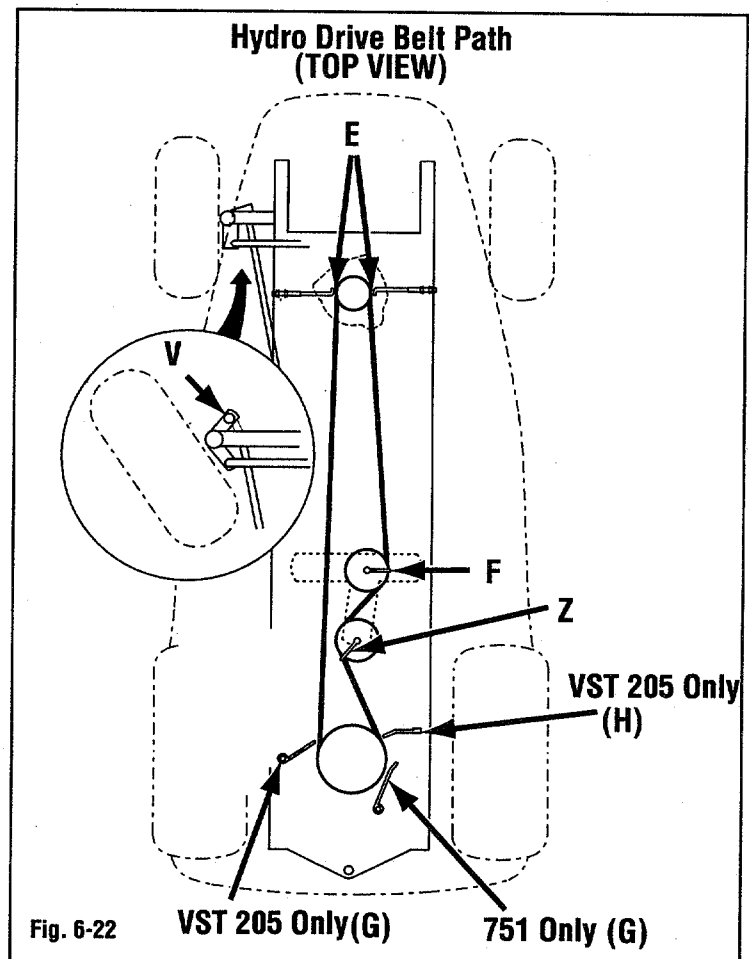
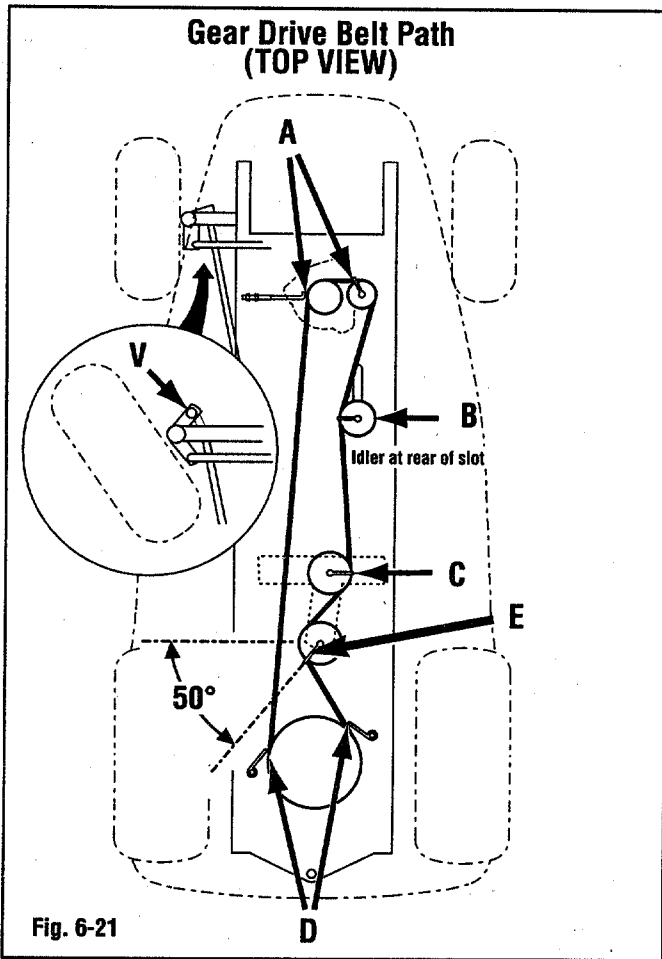
- Stop unit.
- Tighten hardware (C).

- Start unit again. If rear wheels move with travel pedal in "neutral" position, repeat adjustment procedure.

Hydrostatic Maintenance and Lubrication
Perform the following procedure every 25 hours of operation:

- Remove ignition key.
- Remove all dirt from around transmission filler area. Clean transmission cooling fins with compressed air or a wire brush. If tractor is operated in a dusty environment, check and clean cooling fins more frequently.
- When transmission is cold, check fluid level in transmission by looking through the reservoir cup. Do not remove the reservoir cup cover unless the fluid level is low. Removing the cover can allow dirt to get into the hydrostatic system. If necessary, fill to mark on reservoir tank with 20-weight oil.

Maintenance (continued)



Drive Belt Removal/Installation

Set parking brake. Place drive controls into neutral position before removing/installing belts. Removing fender will aid belt replacement/adjustment (see "Fender Removal" earlier in this section).

DRIVE BELT REMOVAL:

- Turn steering wheel to the LEFT. Remove locknut (V, 6-21 & 6-22) at drag link. Do not rotate balljoints.

- Loosen all belt guides and work belt from belt path and off unit.

DRIVE BELT INSTALLATION:

GEAR DRIVE UNITS:

- Route belt around sheaves as shown in Fig. 6-21.

- Adjust belt guides (A, Fig. 6-21) 1/16" to 1/8" away from belt when the belt is in the "engaged" or tensioned position. Secure guides (A).

- Adjust belt guide (B) so it is pointing straight to the left of the unit as shown in Fig. 6-21. Secure guide (B). **NOTE: Adjust idler all the way to the rear in slot.**

- Adjust belt guide (C) so it is pointing straight to the right of the unit as shown in Fig. 6-21. Secure guide (C).

- Adjust belt guides (D) 1/16" to 1/8" away from belt. Secure guides (D).

- Adjust belt guide (E) so it is pointing 50° back from straight left, as shown in Fig. 6-21. Secure guide (E).

HYDROSTATIC DRIVE UNITS:

- Route belt around sheaves as shown in Fig. 6-22.

- Adjust belt guides (E) 1/16" to 1/8" away from belt. Secure guides (E).

- Adjust belt guide (F) so it is pointing straight to the right of the unit as shown in Fig. 6-22. Secure guide (F).

- Adjust belt guides (G and H) 1/16" to 1/8" away from belt. Secure guides (G and H).

- Adjust belt guide (Z) so it is pointing as shown in Fig. 6-22, 1/16" to 1/8" away from belt. Secure guide (Z).

- Re-install fender if necessary.

Tire pressure

Always maintain proper tire pressure.

- Front—12 - 14 PSI (82 - 96 kPa)
- Rear—8 - 10 PSI (55 - 69 kPa)

NOTE: Inflate both front tires evenly. Inflate both rear tires evenly. Unit will not be level if this instruction is not followed.

DO NOT OVER-INFLATE TIRES!

Maintenance Chart

INTERVAL*	ITEM	SERVICE
Each use	Mower Blades Air Intake Screen Loose or Missing Hardware Belts Brake Engine Oil Level	Check Check Tighten or Replace Check Check Check
First 5 hours	Engine Oil and Filter	Replace
25 hours	Engine Oil** Air Filter Transmission Cooling Fins Axle & Spindle Bearings Brake & Clutch Steering Sector	Check Clean Clean Check for wear and grease*** if necessary Grease***
50 hours	Engine Oil** Engine Oil Filter Transmission Oil	Replace Replace Check (see "Maintenance" section for level)
100 hours	Air Filter Element Fuel Filter Spark Plug(s)	Replace Replace Replace
Each Season	Linkages Cables Belts Wheel Bearings Hood Front Axle Spindles Steering Sector	Lube & adjust Check/replace, adjust Check/replace, adjust Grease*** Wax with auto wax Grease*** Grease***

*Interval describes running time.

**Consult engine owners manual for more detailed engine service information.

***A hand-type grease gun is recommended when greasing the unit. High-pressure type grease guns could cause damage to fittings/seals.

This table describes service guidelines only. It does not provide complete service information. Complete service is available from your authorized dealer.

Maintenance (continued)

Troubleshooting Chart

Possible cause	Symptom																
	Excessive vibration.	Engine does not turn over.	Engine turns over but will not start.	Engine starts only after repeated tries.	Engine runs roughly.	Engine stalls in a few seconds.	Engine runs but unit does not move.	Transport drive always engaged.	Engine stalls when hot.	Engine overheats.	Attachment drive inoperative.	Attachment drive always engaged.	Cruise control inoperative.	Headlights do not light.	Brakes will not stop tractor or hold when in park.	Battery not charging.	TURN TO PAGE
Engine malfunction (refer to engine manual).	•	•	•	•	•	•			•	•							
Faulty attachment drive switch.		•				•					•	•					
Faulty cruise, interlock switches or relays.		•				•							•				
Dirty engine cooling fins or flywheel screen.								•	•								24
Faulty ignition.			•	•	•	•											
Faulty spark plug(s).	•		•	•	•	•				•							26
Empty fuel tank.			•			•											15
Faulty or dead battery or charging circuit.		•							•							•	25
Maladjusted or dirty carburetor.			•	•	•	•			•	•							25
Improper oil level.										•							23
Dirty air cleaner element.			•		•	•			•	•							24
Maladjusted choke.			•	•	•	•				•							17
Brake engaged.	•						•										18
Brake not engaged.		•															18
Blown fuse.		•											•			•	26
Plugged fuel line or filter.			•	•	•	•				•							26
Transmission malfunction.						•	•	•									28
Linkage malfunction.	•						•	•							•		
Broken or loose belt(s).						•	•			•							30
PTO not turned off.		•															18
Operator not in seat.																	18
Headlight burned out or faulty light switch.													•				
Brake out of adjustment.															•		27
Bad fuel.		•	•	•	•	•											
Loose engine.	•					•											
Inoperable fuel solenoid.			•														
Brake switch.		•															
Transmission freewheel valve.							•										
PTO/attachment clutch.										•	•						

This table describes service guidelines only. It does not provide repair information. Complete service is available from your authorized dealer.

Lubrication Chart (refer to Fig. 6-22)

ITEM	INTERVAL	LUBRICATION TYPE	AMOUNT REQUIRED
A--Engine Crankcase	First 5 hours	Change Oil & Filter	Refer to engine manual supplied with unit
	25-50 hours	Change Oil & Filter (lubrication intervals vary with operating conditions and type of oil used)	
B--Hydrostatic Transmission	25 hours	Check Oil Level (under seat)	See page 29
C--Front Axle/Spindles	25 hours	Multi-Purpose Grease	As Required
D--Brake Pedal/Linkages	25 hours	Engine Oil	As Required
E--Wheel Bearings	25 hours	Multi-purpose grease	As Required
F--Tie Rod Ends/Drag Links	25 hours	Engine oil	As Required
G--Steering Shaft	25 hours	Multi-Purpose Grease	As Required
H--Steering Sector	25 hours	Multi-Purpose Grease	As Required

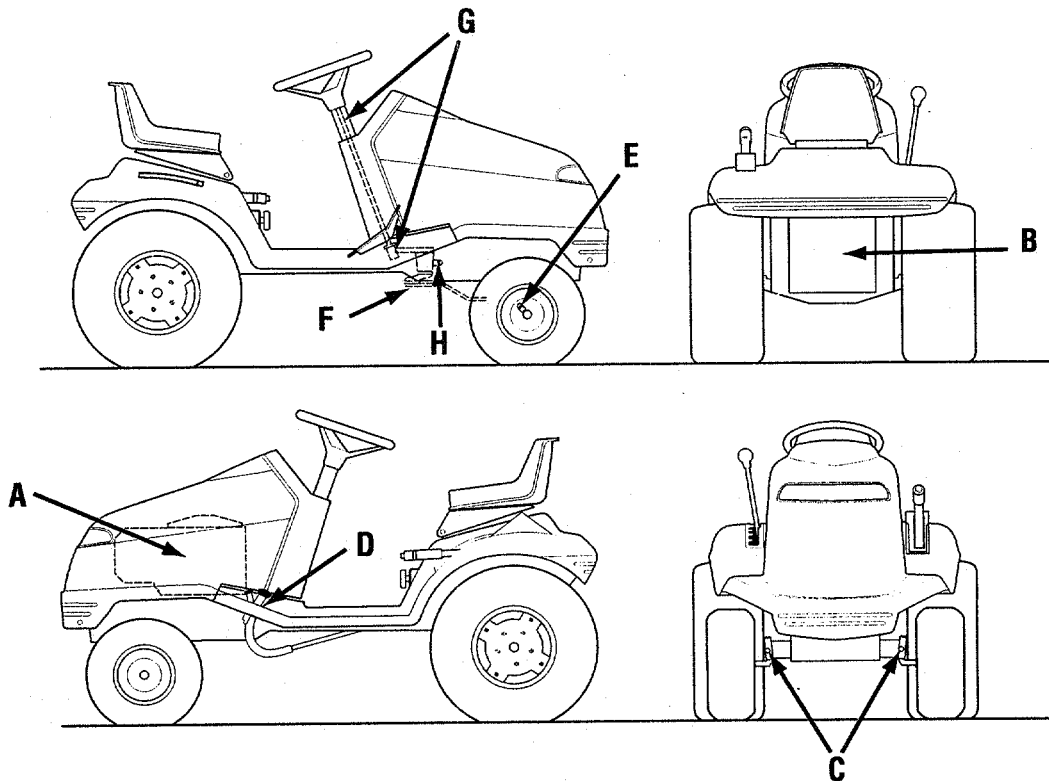


Fig. 6-22

Section 7

Storage

When storing the unit for more than 30 days:

Add a gasoline stabilizer to fuel or move unit outside and run for at least 10 minutes until engine stops from lack of fuel.

Remove key from ignition.

Lower any mounted attachment to ground. Place attachment/PTO switch into the "OFF" position.

Allow engine to cool and clean dirt and debris from unit. Thoroughly clean engine cooling fins, engine flywheel screen and transmission cooling fins.

Change engine oil.

Remove, clean and re-gap spark plug. Reset gap according to specifications in engine manual.

Re-install spark plug. Replace plug if badly worn. Leave spark plug wire disconnected.

Clean or replace engine air filter if necessary.

Check fuel filter and replace if necessary.

Check battery electrolyte level and add distilled water only if necessary. Charge battery once a month during storage. Charge at 2 amps until specific gravity reading is 1.265 to 1.275. Store battery at 20° F (7°C) to 50° F (10°C). Clean battery posts and coat with petroleum jelly. Apply rust preventative to surfaces subject to corrosion. Apply touch-up paint to surfaces where paint has chipped.

Apply a good grade of automotive wax to hood.

Store unit in a dry, secure location.

Specifications

Specifications listed below are grouped by model number. Several attachments and kits are available which can improve the performance and comfort of the unit. See page 9 for further details.

Dimensions: Length All units.....72"		13097, 13099 Eaton Hydrostatic Drive: Model 751 Speeds (in MPH) Forward.....0—6.3 Reverse.....0—3.1	
Wheelbase 13095, 1309748.25" 1309949.75" 1309651.5"		Tire sizes 13095 Front ...15 x 6.00-6RS Rear ...20 x 8.00-8	
Height 13095, 1309643" 1309744.5" 1309945"		13096, 13097 Front ...15 x 6.00-6RS Rear ...20 x 8.00-10	
Width 13095, 13096, 13097.....35" 1309938"		13099 Front ...16 x 6.50-8 Rear ...23 x 10.50-12	
Engine Briggs & Stratton: 13095Diamond Model 28M707-0615-A1 13HP 13096Vanguard Model 28P777-0635-A1 13.5HP 13097Vanguard Model 28Q707-0641-A1 15.5HP 13037Vanguard Model 303777-0333-03 16HP		Lift 13095, 13096, 13097 Manual w/spring assist 13099..... Electric	
Transaxle 13095 Peerless Gear Drive: Model MST 205-5 Speed Speeds (in MPH) 1st-1; 2nd-2.2; 3rd-3.3; 4th-4.2; 5th-5.5; Rev.-1.9		Turning radius (inside rear wheel): 13095, 13096, 1309720" 1309922"	
13096 Peerless Hydrostatic Drive: Model VST 205 Speeds (in MPH) Forward.....0—5.5 Reverse.....0—2.1		Ground clearance: 13095, 13096, 130976.25" 130998.25"	
		StarterElectric	
		Attachment/PTO driveElectric	
		Fuel capacity4 gallons	
		Battery 13095, 13096, 1309712V/190 ACC, 7-plate battery 1309912V/295 ACC, 9-plate battery	
		Features: All unitsHeadlights All units.....Attachment/PTO Drive Light 13096, 13097, 13099Hour meter 13099Ammeter, Cruise Control, Electric Lift	

LIMITED WARRANTY

Products Covered This warranty is for the following TROY-BILT® branded products and their attachments or accessories: chipper/shredders, chipper/vacs, walk-behind mowers, riding mowers, tractors, snow throwers, brushcutters, sprayers, carts, composters and the Mini-Tiller.

Date Warranty Begins The warranty begins on the date of purchase.

What is Covered This product (except for the engine, as explained below) is warranted by Garden Way Incorporated to **the original purchaser only**, to be free of defects in material and workmanship under normal use and service for the following time periods:

NON-COMMERCIAL RESIDENTIAL USE. 7 Years
COMMERCIAL OR OTHER NON-RESIDENTIAL USE. 90 Days

ENGINES: Engines used for non-commercial residential purposes are covered by the engine manufacturer's separate Limited Warranty. Garden Way Incorporated does, however, extend the length of the engine manufacturer's limited warranty, providing you with coverage for a total of 3 years. Please refer to the separate engine owner's manual for details concerning the engine manufacturer's Limited Warranty.

Engines used for commercial or other non-residential purposes are warranted by their respective manufacturer for the time periods indicated in the Limited Warranty printed in the separate engine manufacturer's owner's manual.

What is Not Covered

1. This warranty does not cover the periodic, normal replacement of parts that wear out such as belts, seals, blades, batteries, etc.
2. This warranty does not cover damage, malfunctions or failures due to:
 - a) Use of unauthorized accessories or attachments.
 - b) Misuse, accidents, or a lack of reasonable and necessary maintenance as specified in your product's Owner/Operator Manual (you may wish to keep records of maintenance and service).

What We Will Do For You We will, at our option, repair or replace any part found to be defective in material or workmanship, without charge for parts and labor. However, charges for pick-up, delivery, and service calls are not covered by this warranty.

How to Obtain Non-Engine Related Warranty Service

- You may be required to provide proof of the date of purchase (your sales receipt, for example).
- Contact any TROY-BILT® Authorized Service Dealer (if purchased from a dealer, we recommend that you contact the same dealer you purchased this product from in order to give the dealer the opportunity to service you to your satisfaction). Refer to your local telephone directory for the name of your nearest dealer or call the TROY-BILT® Technical Service Department (see Toll-Free number below) for assistance.

-OR-

- Contact the TROY-BILT® Technical Service Department in Troy, N.Y. at this Toll-Free number:
1-800-833-6990.

How to Obtain Engine Warranty Service Contact any service dealer that is authorized by the manufacturer of your engine. Please refer to the engine manufacturer's Limited Warranty for exact details on how to obtain warranty service. If you have any questions or concerns regarding engine warranty service, please call the TROY-BILT® Technical Service Department for assistance.

Disclaimer of Consequential Damages Garden Way Incorporated shall not be liable under any circumstances for any incidental or consequential damages or expense of any kind, including but not limited to cost of equipment rental, loss of profits, or cost of hiring services to perform tasks normally performed by the equipment.

Limitation of Implied Warranties Any implied warranties, including without limitation any implied warranty of merchantability or fitness for a particular purpose, shall be limited in duration to a period of seven years (90 days if product is purchased for commercial or other non-residential use) from the date of sale.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS. THEREFORE, THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Garden Way Incorporated, 102nd St. & 9th Avenue, Troy, New York 12180

For customer assistance, contact your nearest authorized dealer or:

In the United States: Garden Way Incorporated • 102nd St. and 9th Ave. • Troy, New York 12180
For Technical Service: (800) 833-6990 • For Parts: (800) 648-6776

In Canada: Garden Way Incorporated • 320 Van Sickle Rd., Unit 12 • Saint Catherines, Ontario L2R 6P7
For Technical Service or Parts: (800) 225-3585